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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

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DECREASE IN TONNAGE.

Returns of the navigation bureau show that during the fiscal year ended on June 30, 1898, there were built and documented in the United States 952 merchant vessels of 180,458 gross tons, compared with 891 vessels of 232,233 gross tons for the preceding fiscal year. The decrease in construction is almost wholly on the Great Lakes, where the new documented tonnage amounted to only 54,084 tons, compared with 116,837 tons for the previous fiscal year. The construction on the Pacific coast was 49,789, compared with 7,495 tons for the previous fiscal year, this increase being chiefly steam vessels designed for the Alaskan-Pacific and Alaskan river trade. The decrease in construction was wholly in the first half of the fiscal year, when shipbuilding in Great Britain and other maritime countries also showed a falling off of about 20 per cent. During April, May and June—the months of the war with Spain—the tonnage built and documented in the United States was double that of the corresponding months of 1897.

The tonnage built and officially numbered during the first quarter of the current fiscal year, ended on Sunday, comprises 301 vessels of 83,191 tons, compared with 97 vessels of 26,805 tons for the corresponding quarter last year. Indications are that construction during the current fiscal year will be greater than any annual output for 25 years, except 1890-91.

The following summary shows the number and gross tonnage of vessels built and documented in the United States during the fiscal year ended on June 30, 1898, compared with the preceding fiscal year:

GEOGRAPHICAL DISTRIBUTION.	1897.		1898.	
	No.	Gross tons.	No.	Gross tons.
Atlantic and Gulf Coasts.....	609	96,000	514	63,090
Pacific Coast.....	64	7,495	228	49,789
Northern Lakes.....	120	116,937	87	54,084
Western Rivers.....	98	11,792	123	13,495
SAIL—Wood.....	327	29,678	357	27,692
Steel.....	11	34,631	2	6,724
STEAM—Wood.....	244	27,917	343	57,337
Iron and Steel.....	44	78,236	51	48,501
Canalboats.....	70	10,216	20	2,386
BARGES—Wood.....	182	40,027	169	30,777
Steel.....	13	11,528	10	7,041
Total.....	891	232,233	952	180,458

The tonnage tax collected during the fiscal year ended on June 30th, was \$846,771, compared with \$731,770 for the previous year and \$544,255 for 1896. British vessels paid \$552,721; German vessels, \$86,120; American vessels, \$63,334; Norwegian vessels, \$47,070 and Spanish vessels, \$17,521.

Collections at New York, were, \$283,827, compared with \$237,778 for the previous year; New Orleans, \$79,550, compared with \$65,948; Philadelphia, \$69,815, compared with \$62,354; San Francisco, \$38,330, compared with \$47,371; The tax collected during the last year is larger than has been collected in any year since the tax law was changed in 1884.

THE PARRY SOUND ROUTE.

Erastus Wiman, who for some time past has been in Buffalo, ostensibly in the interest of the furtherance of his projects of canal transportation, has returned to New York enthusiastic upon the subject of the possible development of the Erie canal. He is emphatic in the expression of a conviction that the Parry Sound route from the point of production on the upper lakes to the point of export at Montreal is a new and important artery, of which New York must beware if it is to hold its own in the food movement from the west. He still holds, also, to the theory that to compete with the Parry Sound and other Canadian routes it will be necessary



The Defender Cup.

Presented by the New York Yacht Club to the owners of the Defender in recognition of their successful defense of the America cup, after the last race.

to complete the improvement of the Erie canal, but he is equally firm in the conviction that this improvement should contemplate also the widening of the locks to thirty-five feet, with a length of 150 feet, which would enable the accommodation of boats with a capacity of 20,000 bushels. Mr. Wiman argues that these vessels would be large enough to navigate Lakes St. Clair and Erie, forming a line direct from Port Huron, and also sufficiently large to navigate Long Island Sound. As for the enlargement of the locks, is claimed that the expense would not add more than from \$3,000,000 to \$5,000,000 to the estimate already formed, and that possibly the appropriation might be secured from the federal government by reason of the benefit that could be derived from the enlarged locks in the event of war. Mr. Wiman states that he found a strong sentiment among the canal men in favor of consolidating of their interests.

HARBOR AND RAILWAY IMPROVEMENTS IN ONTARIO.

The U.S. Consul reports that a slip dock has been constructed at Port Stanley by the Lake Erie and Detroit River Railway Company. It will be completed on or about August 1, and a car ferry line put in operation at once. The boats which will run to that port are those now used between Conneaut and Port Dover, and the railroad connection with the United States will be with the Pittsburg, Bessemer, and Lake Erie railroad, through which connection will be made with the Baltimore and Ohio, Allegheny Valley, and, in fact, all the roads running out of Pittsburg. Connections will be made in Canada over the Lake Erie and Detroit River Railroad with the Grand Trunk, Wabash, Michigan Central and Canadian Pacific at St. Thomas.

The principal traffic at first will be in hard and soft coal for all points in western Ontario. It will be loaded on the cars at the mine's mouth and laid down in the yard of the dealer, thus saving all the intermediate handling and consequent expense, which should result in a lowering of price to the consumer. The cost of transferring the coal from vessel to cars at Port Stanley has ranged from 8 to 10 cents per ton for steam power and 15 to 17 cents per ton for horse-power.

The Dominion government, I am informed, is about to expend from \$15,000 to \$25,000 in dredging Port Stanley harbor and retimbering the piers, in order to give access to the heavy-draft lake vessels. The lack of this improvement has been the cause of diverting much traffic from Port Stanley in recent years. It is probable also that a larger and more modern passenger boat will be placed in service between Port Stanley and Cleveland, to supplant the steamer Flora now operated by the Lake Erie and Detroit River Railway.

LIFE-SAVING CREW AT OMAHA.

The daily exhibitions which the life-saving crew are giving at the exposition now in progress at Omaha, Nebraska, are attracting a great deal of attention from the public; the crew is as follows: Henry Cleary, of Marquette, captain; Henry Sinnegen, Milwaukee; Jacob Van Wulden, Grand Haven; James Scott, Sand Beach; Winfield S. Adamson, of Grindstone City; Henry Walker, Muskegon; Frank Johnson, Holland; John McLeod, Duluth; Nelson Sims, East Tawas. In its comments on the crew, the Omaha World Herald says:

From the very first day that the life-saving exhibition was given on the exhibition grounds it has been popular, and every afternoon the space in front of the government building and the broad pavement all around the trefoil lake at the west end of the lagoon are thronged with people who want a suggestion of the perils of the sea and a picture of the heroism with which the shipwrecked are saved.

The exhibitions are popular because they show a kind of work with which the people of the interior 500 or 1,000 miles even from the Great Lakes, are inevitably not familiar. One of the oldest of the men here is John McLeod, a native of Scotland. He is 42. He came to this country when 8 years old. He entered the service in 1882 at Thunder Bay and Middle Island, Lake Huron, and remained in it for four years, and, retiring, re-entered it four years ago at Duluth. He was once a fisherman. When asked what his hardest experience was he refers to the wreck of the Thomas P. Sheldon, stranded on a reef about two miles from Middle Island, in November, 1885. He and his crew were out three days in cold and windy weather, and saved both ship and crew.

ANOTHER CAR FERRY TERMINAL.

Agents Peak and Allison, of the Ann Arbor Line, inspected this week water facilities for entering the mouth of Cedar river, near Menominee, Green Bay, Wis. They intend to land locomotives and cars there for the new railroad which is to be constructed between Cedar river and Powers, on the line of the Chicago & Northwestern, by Samuel Crawford & Sons, of Pigeon, Forest county, Pa.

NEWS AROUND THE LAKES.

CHICAGO.

Special Correspondence to The Marine Record.

Grain freights remain steady on the basis of $1\frac{3}{4}$ cents on corn to Buffalo.

Capt. John Prindiville chartered the steamer G. G. Hadley for wheat to Buffalo at $1\frac{1}{8}$ cents.

The new steel fire-boat building for the city is drawing near completion and will probably be launched on Oct. 15th.

The I. T. Line tug Prodigy, arrived here Tuesday morning with a tow of 6 schooners, as follows: Aldrich, Olga, J. L. McLaren, B. Calkins, R. Campbell, C. Crawford.

The O. S. Richardson Fueling Co. had the steamers R. R. Rhodes and D. C. Whitney, and barge Dundee unloading bituminous coal at their north pier fueling dock last week.

The I. T. Line floating dry dock has their tug on receiving four strakes, new plank all around, from the water's line down, new deck beams and decks, and a thorough overhauling and calking.

The lumber cargo of the wrecked schooner Mediator, of this port, has been sold to Pryor & Son, and the vessel was purchased by Joseph Croze, of Houghton, Mich., for \$250.00. She may be rebuilt during the winter at the Croze shipyard.

The I. T. Line tug A. G. Van Schaick had her pilot house pushed forward by the headgear of the schooner C. P. Minch, which she was towing up the south branch of Chicago river Friday night. A jam at Randolph street bridge caused the trouble.

The steamer Lawrence, of the O'Connor Transportation Co., wound up her season's work between Chicago and St. Joseph on October 1st. The steamer J. S. Krouse, recently built by Capt. R. C. Britain, of Saugatuck, will complete the season's work.

James Myers, of the firm of C. W. Elphicke & Co., returned from Cleveland Sunday, where he had negotiated for the chartering of the schooner Thos. L. Parker to the Atlantic Transportation Co. The schooner left Cleveland for the Atlantic coast on Saturday.

At the shipyard here the steamer John Rugee is in dock receiving a new stem, the steamer Westover was in for searching-up and bottom scraping, the steel passenger and freight steamer America for repairs to rudder, the barge Iron Queen received 14 new stanchions, about 40 feet of new rail and considerable covering board.

The Burke Transportation Co., who have been running a daily line between Chicago, Waukegan and Kenosha with the steamer T. S. Faxton, finding that the business demanded a larger and faster steamer, have secured the steel passenger and freight steamer America, to replace the Faxton. The new service commenced Monday morning from the State street dock, leaving at 11 a. m.

At the Chicago Ship Building Co.'s shipyard the steamer Minneapolis is in dock for repairs to her bottom. Twenty plates have been taken off, re-rolled and replaced; the steamer City of London was in dock for repairs to stern bearing and some calking, the schooner Charles Foster received some general repairs, calking, and a new cathead, the extensive repairs on the steamer Escanaba have been completed and she got away on Wednesday.

Capt. Carris, of the Goodrich steamer Georgia, was before Commissioner Bloodgood, at Milwaukee this week, to answer to a charge of assaulting a seaman, which, in the eye of the law, is a serious offense. The charge was made by John O'Brien, a deckhand, who alleges that the captain struck him while the steamer was lying at the Goodrich dock in Milwaukee. Capt. Carris was bound over to appear before the grand jury, and his bond was fixed at a very high figure.

J. A. Calbick & Co. chartered the steamer W. P. Ketcham and consort Geo. B. Owen for corn to Port Huron at $1\frac{1}{2}$ cents, the same vessels for dry lumber from Washburn to Chicago at \$1.87 $\frac{1}{2}$, the steamer Kalkaska and consort Aloha for corn to Midland at $1\frac{3}{4}$ cents, the same vessels for lumber from Duluth to Chicago at \$2.00, steamer James Sheriff and consort James Mowatt for corn from South Chicago to Midland at $1\frac{3}{4}$ cents, the same vessels for lumber from Ashland and Washburn to Chicago at \$2.00, the steamer Toltec and consort Miztec for lumber from Duluth to Chicago at \$2.00.

The steam barge Pewaukee, Capt. Simon Christopherson, with lumber for this port, was towed in here Tuesday morning by the I. T. Line tug Rita McDonald, and sank in the light-house slip soon after she arrived. The Pewaukee sprang a leak about 3 a. m., and the tug picked her up about 7 a. m. off Grosse Point. The water gained on her so rapidly that her fires were extinguished when off the waterworks crib. The Pewaukee was built at Port Burwell, Ont., in 1873, and is owned by Leatham & Smith, of Sturgeon Bay, Wis. It was fortunate for her officers and crew that aid was not far distant, as there was a heavy sea running and the wind was high.

Capt. W. H. Singer, of the Singer Tug Line, of Duluth, says that the flour from the wrecked steamer Colorado has been loaded on the barge Noyes and will be towed to Port Huron by the tug Zenith. The Singer Co., saved 600 tons of the cargo of the Colorado and did it just in time. Within twelve hours after the flour had been removed the vessel went to pieces.

BUFFALO.

Special Correspondence to The Marine Record.

Capt. F. W. King was sworn in this week as master of the propeller P. H. Blanchard.

The Neshoto after grounding at the Lime Kilns has been placed in the Mills dry dock for survey and repairs.

A Golden patent propeller wheel has been placed on the tug Dunbar, but no conclusive test of the new propelling device has yet been made.

Maj. Symons Corps of Engineers U. S. A. has selected a site for the proposed lighthouse supply station, which he feels Congress will approve. The location selected is on the south pier, in the rear of the lighthouse.

After lightering 600 tons of her ore cargo, the schooner May Richards, which went aground near Germania Park, was raised sufficiently to be patched. She loaded coal for Lake Linden and will be given final repairs at some upper lake drydock.

The private yacht Duen, owned by the Countess Schimmelmenn, of Copenhagen, Denmark, arrived here from St. Catherine, Ont. The countess is on board and will make a visit to Buffalo extending over several days. She will then proceed to Chicago, where she will pass the winter.

Capt. F. D. Chamberlin, of the Philip D. Armour, appeared by proxy in the municipal court at Buffalo and pleaded guilty to violating a city ordinance by blocking Michigan street draw. The fine was remitted, defendant paying the costs and promising not to repeat the offense.

The schooner Maia made her first trip to Buffalo, this week, bringing down a cargo of ore. The Maria is a new vessel, built at Chicago for the Minnesota line, and is the largest schooner afloat on the lakes. This is her second cargo and is said to have been a record gainer for vessels of her class, amounting to 5,909 tons.

Col. D. S. Alexander has been notified of the findings of the government commission, which recently met in Buffalo to consider the matter of the width of the draw of the proposed new bridge at Grand Island. It is understood that the report favors a 200-foot draw, clear of all obstructions. This is in accordance with the wishes of interested parties.

The coal rate to Lakes Michigan and Superior has been steady all week at 30 cents and 20 cents respectively though some Lake Linden cargoes paid 30 cents, a new dock at Waukegan paid 50 cents and on account of the shoal water as well as slow handling of cargoes the Racine rate for small tonnage advanced from 35 cents to 40 cents.

The big propeller Superior City which broke the record as a grain carrier, by bringing down 195,000 bushels of wheat and 40,000 bushels of flaxseed, also gained the record in time consumed in discharging and getting away. Her cargo was consigned to five different elevators, and thirty-six hours after she began unloading, she was out on the lake on her return trip.

Canal boats will not be classed as marine property. Judge Childs of this city decided Saturday that the state, rather than the admiralty courts have jurisdiction over them. The case was that of Timothy Bray, of Middleport, who furnished supplies for the A. S. Rache. He failed to secure his pay and obtained a writ of attachment against the boat. The case was fought by the boat's owners on the ground that it should justly come under consideration of the admiralty. Judge Childs held adversely.

"Speaking of modern improvements on lake craft," said Capt. John C. Fitzpatrick. "can you tell which vessels have been pioneers in adopting them? Really, it has not been the boats one would naturally expect to take the lead. The first boat adopting the stockless anchor was the Alva, built by the Cleveland Ship Building Co., for M. A. Bradley. The Onoko was the first to put in a steam steering gear. The Onoko was built by the Globe Iron Works Co., in 1882 and, with her net tonnage 1,933, was considered a mammoth vessel."

Mrs. Jesse Graves, whose husband is now serving a 16-year sentence in Auburn, on a charge of manslaughter, visited District Attorney Kenefick this week and asked him to aid her to get her husband pardoned. Mr. Kenefick declined to interfere, however. Capt. Graves was indicted in 1895 on three charges, murder, manslaughter first degree and rioting. He pleaded guilty to the second count. He was interested in the riot on the lumber docks at Tonawanda on August 31, 1895, when Capt. Lorenzo Phillip and his son Charles were killed.

United States Assistant Engineer William T. Blunt says that in the harbors from Conneaut to Monroe the depth of water in nearly all is 17 feet at mean level, and the surface, which is now eight or nine inches below this level, will probably continue to fall during October and November, as those months usually bring much westerly wind. The engineer also talks a good deal about overloading though he should know that ballast trim would be deep enough for some of the ports and a vessel in light trim is surely not overloaded. Like the man with the new hat, his head was not too large it was the hat that was too small, so with the ports, vessels are not overloaded but the water is too shoal. In any case owners, masters and brokers won't ask the engineer to charter load or handle their vessels, his duty seems to be to report depths and not talk too much about vessels overloading as that if proved vitiates their insurance.

William St. John, general agent of the Safety Car Heating and Lighting Company, of New York, writes the Courier this week as follows: "In your issue under date of Sep-

tember 14th, I notice in regard to the breaking away from its moorings of a gas buoy off South Bass Island, that you say 'the buoy is an expensive affair, the government having paid \$4,500 for it in Germany.' You are somewhat in error. These buoys did cost the government \$1,450, before the present tariff; now with the duty added the cost amounts to \$1,830 each. They are built of steel and welded; the lantern is constructed thoroughly wind and water proof and contains a very expensive lens, besides a regulator. The price at which these buoys are furnished the government I do not consider excessive, in view of the substantial manner in which they are built and the valuable aid they are to navigation."

DETROIT.

Special Correspondence to The Marine Record.

Following the practice of certain plate mills, the Detroit Dry Dock Co., at its Wyandotte yards, now uses magnets for handling plates. Two magnets, one at each end of a plate, are employed, and thus upheld the plates will be conveyed by means of a crane.

Capt. Hogsdon, commander of the cutter McCulloch during the battle on Manila bay, is now in command of the revenue cutter Fessenden. Capt. Davis, who lately had command of the craft, has gone east to the cutter Morrill. He expects to get her up the St. Lawrence and through the canals before the close of navigation.

In the suit of Bradley, Miller & Co. vs. the Bessemer Steamship Co. et al, a motion was made before Judge Swan to remand the case from the Circuit Court of Bay county to the United States Circuit Court on the ground that the Bessemer Steamship Co. has its residence in West Virginia, and on other grounds. The motion was taken under advisement by the judge.

John S. Gray, of the firm Gray, Toynton & Fox, owner of the steamer Toledo, which is sunk near the entrance to Portage Lake canal, has received notice that the wreck is an obstruction to navigation and must be removed. This will be done as soon as possible. Mr. Gray does not know whether it will pay to raise her. He has been able to locate only two of the Toledo's crew. The steamer was not insured.

C. F. Bielman, of the Star-Cole line of steamers, has returned from New York, where he has been inspecting some of the vessels on the Hudson river with a view of choosing a model for a new boat for his line. Mr. Bielman has about decided to have the new steamer built after the model of the passenger steamer New York, which is 430 feet long, 75 feet beam and carries 4,000 passengers. The present intention is to have the boat built at Wyandotte, and to be ready for use by the opening of the season of 1900.

Capt. A. C. Cuson died at his residence, 135 Sixteenth St., on Thursday last, of consumption, after a long illness. Capt. Cuson was born in this city 53 years ago, and has always lived here. He sailed the lakes for many years. At the age of 21 he was entrusted with the command of the brig Andes. He sailed one of Capt. E. B. Ward's steamers for many years and also commanded the Missouri, Michigan and Monhegan. His last vessel was the barge D. M. Wilson. Failing health compelled him to retire from active service about eight years ago. Capt. Cuson was a prominent member of the A. O. U. W. A widow survives him. The funeral took place from the residence Sunday afternoon and at Emanuel Presbyterian church. The burial was at Woodmere.

Capt. Alexander Ruelle, the well-known tug boat owner, died at his residence, 157 Joseph Campau avenue on Tuesday. Capt. Ruelle had not been well for two years, but he stuck to business until last July, since which time he has been confined to the house. The cause of his death was enlargement of the heart. Capt. Ruelle was of French descent, his ancestors having settled in lower Canada in the early days. His father moved to Detroit, and in 1836 Alexander was born and lived here all his life. He began his career as a sailor on the lakes when very young, and was but 18 years old when he had charge. His last vessel was the schooner Floretta, which he left in 1874 to engage in the tug business. Since that time the Ruelle fleet of tugs has been well known on the river and the genial captain was well known to many sailors on the Great Lakes. Capt. Ruelle leaves a widow and four children, all grown up. One of his sons will carry on his late business.

A year ago last March F. W. Wheeler & Co., gave the Union Trust Co., a \$250,000 mortgage upon their plant at Bay City, and last May a lot of creditors whose claims aggregated \$20,000 got a chattel mortgage running to H. T. Wickes, of Saginaw, as trustee. The Bessemer Steamship Co., under a contract clause, took possession of three boats that were being built for it, and began finishing the vessels on its own account. In doing so it appropriated about \$15,000 worth of beams, rivets and other material in the yard. The creditors secured by the chattel mortgage objected, because this material was claimed to be the most valuable part of their security, and as Wickes refused to take possession under the chattel mortgage, they applied for the appointment of a receiver in place of Wickes, and an injunction restraining the Bessemer company from using the material. Judge Maxwell granted a preliminary injunction. The Bessemer company tried to get out of the tangle by having the part of the litigation concerning itself transferred to the federal court, and on Monday Judge Swan heard a motion to send the Bessemer end of the case back to the State court, on the ground that the issues are thoroughly mixed up and cannot be separated. He will decide the matter in a few days.

CLEVELAND.

Special Correspondence to The Marine Record.

Mr. Gilbert N. McMillan, secretary and treasurer of the Detroit Dry Dock Co., visited Cleveland this week.

Coal shippers are all paying 30 cents to Chicago and Milwaukee, and have been taking all the vessels they can get at that figure through the week.

The steamer R. E. Schuck was docked in the Shipowners' dry dock this week for survey and repairs after colliding with the steamer Griffin in the "Soo" River.

The steamer City of Detroit collided with and sunk the tug Alva B. on Monday. Steps were at once taken to raise the tug again. The Alva B. is one of the best tugs in the V. O. T. line.

The steamer John Mitchell grounded in the outer harbor on Tuesday and it took several hours' work to float her. She was slightly out of the channel at the time of grounding and found a shoal patch.

Mr. J. C. Gilchrist received word on Wednesday that three of his vessels on the way down the St. Lawrence, under charter to the Atlantic Transportation Co., were successfully piloted over the rapids.

The announcement on Saturday, that the Bessemer Steamship Co. had taken a charter for 1,000,000 bushels of Duluth wheat created some interest here, as the Rockefeller ships have never engaged in the grain trade.

The Canadian boats Case, Tecumseh and Marengo loaded iron ore this week at the Cleveland Cliffs dock, Marquette, for Desoronto, Canada. This is the first shipment of iron ore from Marquette to a Canadian port.

The Pennsylvania Co. has decided to begin at once the building of an extension to their trestles over the ore stock piles at Ashtabula. This will make room for the storing of thousands of tons of ore, for which room is now limited.

The steamer Maggie Duncan and consorts Constitution and Favorite were chartered Saturday, at \$1.87½, to carry pine board lumber from Ashland to Cleveland. This is an advance of 12½ cents and was the first charter reported at the advanced rate.

Capt. J. N. Smith, of the steamer Robert Wallace, has been transferred to the steamer Vulcan. Capt. Archer, who has been mate on different boats for the Cleveland Rolling Mill Co., for several years, has been appointed master of the steamer Robert Wallace.

The large steel tow barge Australia is docked at the Lorain dry docks of the Cleveland Shipbuilding Co. for extensive repairs after grounding in the "Soo" River. On survey, conducted for the owners by Mr. Thomas Bristow, it was found that the rudder, stern-post and about twenty plates were badly damaged. A number of the plates can be re-rolled and the stern-post straightened.

Some little interest attaches itself to this port on account of the United States taking charge of the island of Porto Rico. A firm, or rather company of Cleveland men, have bought a schooner and will send her on this week to pick up a line of trade out of Porto Rico. Of course, the usual prosperous developments are looked for and it is said that the small canal schooner is only the pioneer craft of what is sure to become a large fleet. As a matter of fact though, there is or can be very little use for a canal schooner to trade around the West Indies. A good handy steamer might make a living for a couple of men.

FLOTSAM JETSAM AND LAGAN.

The steamer Holden was unloaded at Duluth of 5,432 tons of coal in thirteen hours. This makes and gains the record for rapid work in unloading coal.

Horatio N. Jex, of Toledo, was the successful bidder on the job of removing the wreck of the City of Duluth from the entrance of St. Joseph harbor. His bid was \$1,994.75.

Capt. Ed. Napier, could not make satisfactory arrangements with the Graham & Morton people about the proposed search for the lost Chicora, so he has gone with his tugs to Michigan City.

Capt. Sonsmith, of the schooner Rosa L. Sonsmith, was offered \$200 a month to let his vessel go to the seaboard. The captain learned later that other craft not as good as the Sonsmith were being chartered by the same company for \$250 a month and he refused to let his vessel go.

A dispatch from Houghton says: "It is now necessary for the life-saving crew at the ship canal to meet all incoming vessels at night and warn them against the wreck of the Toledo. There is a draft of 17 feet from end to end of the Portage Lake waterways, and vessels loaded three inches deeper might mannaage to pass through safely. Porter Bros. have completed 1,600 feet of cribbing at the ship canal, or nearly one-third of the total work required there.

It is said that Herman B. Duryea is to be associated with Morgan & Islen in the new cup defender syndicate. In view of this fact it is not likely that more than one boat will be built to defend the cup. The work of preparing the ways for the Defender is progressing. It is understood that the aluminum upper body of the Defender will be entirely removed, as the plates have so thoroughly corroded as to be useless. Thin plates of bronze will be substituted.

Benjamin Calhoun, master of the F. C. Leighton, says in regard to the recent libel placed on his schooner by the U. S. marshal at Toledo, that no bill had been presented or demand of payment made upon him. He says, further, that

the boom of his vessel did not strike the uprights of the St. Clair street bridge, to his knowledge. The Leighton was eased through the draw of the bridge with a line. The tug Brickhead, while getting up to the Leighton to put the U. S. marshal on board, stove in two of the Leighton's planks.

Capt. DePuy, of Buffalo, has invented a boiler which he believes will revolutionize boiler building so far as marine boilers are concerned. He has placed one of the new boilers in his canal steamer Paragon. It is 8 feet long 6½ feet wide, and 13 feet 1 inch high. It has 234 2½ inch tubes 6 feet long. The entire heating surface amounts to 1,135 square feet. It is claimed that by actual test it has been shown that there is a great saving of fuel by the new boiler, amounting to one ton of coal a day over ordinary boilers of steam canal boats, and one-half ton over the most economical boiler at present in general use.

Among the vessels chartered for the coast trade are the Iron State and Iron Queen, from J. W. Millen, of Detroit; the Red Wing and San Diego, from A. A. Parker, of Detroit; the Anna M. Ash, Wadena and W. D. Becker, from the Mack-Becker fleet, of Cleveland; the Helvetia, from H. J. Johnson, of Cleveland; the David Wallace, from David Wallace, of Lorain; the Argo, John O'Neil and Charles Wall, from C. R. Jones, of Cleveland; Kathadin and consorts H. H. Brown, Shawnee, William McGregor, Porter and Metacom; the Aragon and consorts Georger, Bacon, Watson and Sheldon are now on their way down.

The 20-foot channel, so far as the Duluth-Superior harbor is concerned, is now an accomplished fact. Boats drawing that amount of water may now proceed from the Duluth ship canal to the Duluth, Missabe & Northern docks in the upper St. Louis bay, or they may proceed as far up on the Wisconsin shore as the Youghiogheny & Lehigh dock. There is also a draft of 20 feet from the Superior entry to the flour mills at Old Superior and to the docks on Allouez Bay. To all of the docks visited by the larger class of vessels there is now the long looked for and much desired 20 feet of water. The only thing to prevent the vessels taking full advantage of the new draft is the fact that there is not 20 feet in the Sault river.

The admiralty case of Heminger vs. the schooner Porter, which was tried at Windsor in March last, has been appealed to the Exchequer Court, and H. Clay, Amherstburg, acting for the plaintiff, and J. E. O'Connor, of Windsor, for the defendants, went to Ottawa to argue the appeal. The action was commenced by Capt. Heminger to recover damages for injuries alleged to have been sustained by the tug Fern in a collision with the Porter near Colchester light on September 2, 1897. At the first trial the plaintiff secured judgment, but an appeal was then taken, the defendant claiming that Heminger neglected to have an anchor watch on deck. The case is one of importance to vesselmen, as it will, in a measure, determine the responsibility of keeping a strict anchor watch on a clear night, or if contributory negligence will, in any case, modify judgment against the offending vessel.

DETROIT MARINE POST OFFICE.

LETTERS REMAINING ADVERTISED IN DETROIT, MICH., POST OFFICE OCTOBER 6, 1898.

To get any of these letters, addressees or their authorized agents will apply at the general delivery window or write to the postmaster at Detroit, calling for "advertised" matter, giving the date of this list and paying one cent.

Advertised matter is previously held one week awaiting delivery. It is held two weeks before it goes to the Dead Letter Office at Washington, D. C.

Austin, Q. O.	Jenkins, David, str. Masaba.
Anderson, Pete E.	Jameison, Malcolm.
Abbott, Chas. I.	Klingles, Chas.
Barden, Harris W.	Kerslatse, John.
Barringer, Lewis J.	Knight, Jesse.
Barion, Alex. G.	LeRoy, D. L., brg. Russell.
Burtis, S.	Millikin, W. J.
Best, Henry.	McClay, Peter, str. M.T. Green.
Berg, Harold.	McKennon, John.
Brown, Dan. H., str. Colby.	McLeod, John.
Brink, Walter.	Navaugh, P. J.
Bradshaw, O.T., str. Colorado.	Nelson, John.
Brown, Wm., U.S.S. Yantic.	Novak, Frank.
Charry, Fred, sch. Penolee.	Osteman, John.
Cowie, N., str. A.D. Thompson.	Porter, Capt. H., str. Hercules.
Dapp, Aug.	Proud, Mrs. H., str. Keystone.
Elliott, Thos.	Robbins, Chas.
Foster, Thos.	Spencer, Capt. Win.,
Gross, Albert.	scr. Ontario.
Gains, John.	Shanahan, Capt. James.
Galvin, Michael,	Stevenson, Will, str. Pahlow.
str. H. B. Tuttle.	Thibodeau, J.
Hart, George, str. Tampa.	Tullis, Wm.
Hollywood, Chas.	Taylor, Geo., str. Empire City.
Henderson, Robt.	Wellmouth, Thomas.
Halvorsen, Pit, scr. Tokio.	Wellman, Geo.
Haarar, W. D.	Widdicombe, John.
Hemrick, Chas.	Wilcox, Bert.

F. B. DICKERSON, P. M.

WRECK OBSTRUCTS NAVIGATION.

The wreck of the steamer Toledo lies about 500 feet from the entrance to Portage Lake canal, between the old canal pier and the new breakwater. She is an obstruction to navigation and the owners have promised to remove the wreck. Unless this is done immediately the government engineers will probably destroy the hull with dynamite and charge the cost to the owners of the wreck.

LAUNCH OF THE U. S. S. ILLINOIS.

The battleship Illinois was successfully launched from the yards of the Newport News Ship Building and Dry Dock Co., Newport News, Va., on Tuesday. The governor of the State of Illinois was given the honor of naming the lady who was to perform the christening ceremony and the choice fell upon Miss Nancy Leiter, of Chicago.

The Illinois will be the most powerful and probably the most generally effective battleship in the United States Navy. Larger by 1,000 tons than the Oregon, larger than the Iowa, heretofore the biggest battleship in the service, the Illinois is still so designed that she will be able to enter any harbor open to the smaller battleships, while in the matter of speed she will rank with any of them.

The most striking difference between the Illinois and the battleships now in service is the high freeboard of the former, enabling her to fight her guns from their great elevation above the water in seas so heavy that the guns of the lower vessels would be submerged and useless. Splendid seagoing powers are also expected to result from increased freeboard.

The first keel plate of this magnificent ship was laid February 15, 1897, and the vessel would have been ready to launch two months ago but for the great rush of work on the auxiliary cruisers at the beginning of the war, at which time work on the battleships was practically suspended.

The vessels of the Illinois class have the same dimensions as the Kearsarge and Kentucky, launched at the same shipyards in March, but there has been a radical departure from the old-time model, both in regard to the number of guns and to the space assigned them. There are to be no 8-inch guns in the Illinois at all, the main battery consisting of four 13-inch guns and fourteen 6-inch rapid-firing rifles.

The increased room in the 13-inch turrets, it is claimed, will permit the big guns to be fired at least one-third faster than the big guns can be fired on the older ships of the battleship class. Then the 6-inch rapid-fires are so arranged that a terrible fire can be concentrated on any given point.

The auxiliary battery is composed of sixteen 6-pounders, four 1-pounders, two colt guns and two field guns, arranged on the upper deck and in the fighting tops so that they will not interfere with the heavier guns, and so as to command every vulnerable point that may be discovered in the enemy.

The vital portions of the hull are protected by Harveyized nicked steel of 16½ inches thickness, which tapers down to four inches on less exposed portions. Following are the dimensions of the Illinois:

Length over all, 473 feet, 9 inches; extreme breadth, 72 feet, 2½ inches; mean draught with 800 tons of coal, two-thirds stores and two-thirds ammunition, 23 feet, 6 inches.

She is to have a speed of sixteen knots and her engines are expected to show an indicated horse-power of 10,000.

LAKE ROUTE WON.

On the first of September the rates on flour from Superior to Buffalo were raised 2 c. a hundred pounds. The Northern Steamship Company, the Anchor line and the Western and Union Transit lines all entered the agreement to advance the rate. This was quickly followed by the "Soo" railway, which cut the all-rail rates of transportation of flour from Minneapolis to the Atlantic seaboard down to a figure below the rail and water rate. As the twin city shippers naturally withhold what business they can from the head of the lake, this opportunity to patronize the railroad and cut out the steamship companies was seized at once. It has been proved that the all-rail route could not handle the heavy fall business and the transportation companies are now beginning to get all the flour at the advanced rate of freight.

NOTES.

WE have received from the Consolidated Safety Valve Company, New York, copy of catalogue in which is described and illustrated single, duplex and triplex pop safety valves, a number of which are made specially to meet the demands of marine service. Interior and exterior views of the factory are shown and a number of testimonial letters are also included. The catalogue is standard size, 6x9 inches, and will be mailed to those interested on application.

THE Snow Steam Pump Co., of Buffalo, has taken the contract from the Cramps for the pumps for two battleships and a cruiser about to be built at Philadelphia—one battleship and the cruiser for the Russian government, and the other battleship for the United States government. A battleship's pump equipment includes: Main boiler feed pump, auxiliary feed pump, fire pump, bilge pump, general water-service pump, sanitary pump, distilling apparatus and hot well pump. The Buffalo company is also building three 6,000,000-gallon pumping engines for the Ohio Steel Co., of Youngstown, Ohio.

THE Spanish cruiser Infanta Maria Teresa was floated on Sept. 23, as the result of operations in charge of Lieut. R. P. Hobson. The vessel was afterward successfully towed to Guantanamo Bay, a distance of 40 miles. The Teresa was launched in 1880 at Bilbao, Spain. She is 340 ft. long, 65 ft. beam, 21 ft. 6 in. mean draft, and her displacement is 7000 tons. She is said to be capable of 18.5 knots on natural draft and 20.5 knots on forced draft. She is protected by 12-in. armor extending in a strip 5 ft. 9 in. wide, for 315 ft. along the water line and 18 in. below it. She has two 11-in. guns mounted behind 10-in. armored turrets forward and aft, and ten 5.5 in. rapid-fire guns arranged along the broadside. Her coal capacity is 1,050 tons. The vessel will be brought north to be repaired and then fly the stars and stripes. An attempt is now being made to raise the Christobal Colon.

MARITIME LAW.

TRINIDAD SHIPPING & TRADING CO. VS. FRAME, ALSTON & CO. ET AL.

(District Court, S. D., New York, February 23, 1898.)

GENERAL AVERAGE—STRANDING—FAILING TO SUPPLY PROPER CHARTS.—The steamship I, stranded on Nevis Island far outside of the direct course to New York, and the line of sailing directions. She was not fully supplied with proper charts, and was directed by the owners to skirt to Windward Islands for the entertainment of passengers. Held, that the owners were responsible for the lack of charts and for the risks of the course they directed, and could not claim general average against the cargo for the expenses caused by the stranding.

This was a libel in personam by the Trinidad Shipping & Trading Co. against Frame Alston & Co. and the Marine Insurance Co. to enforce a claim for general average.

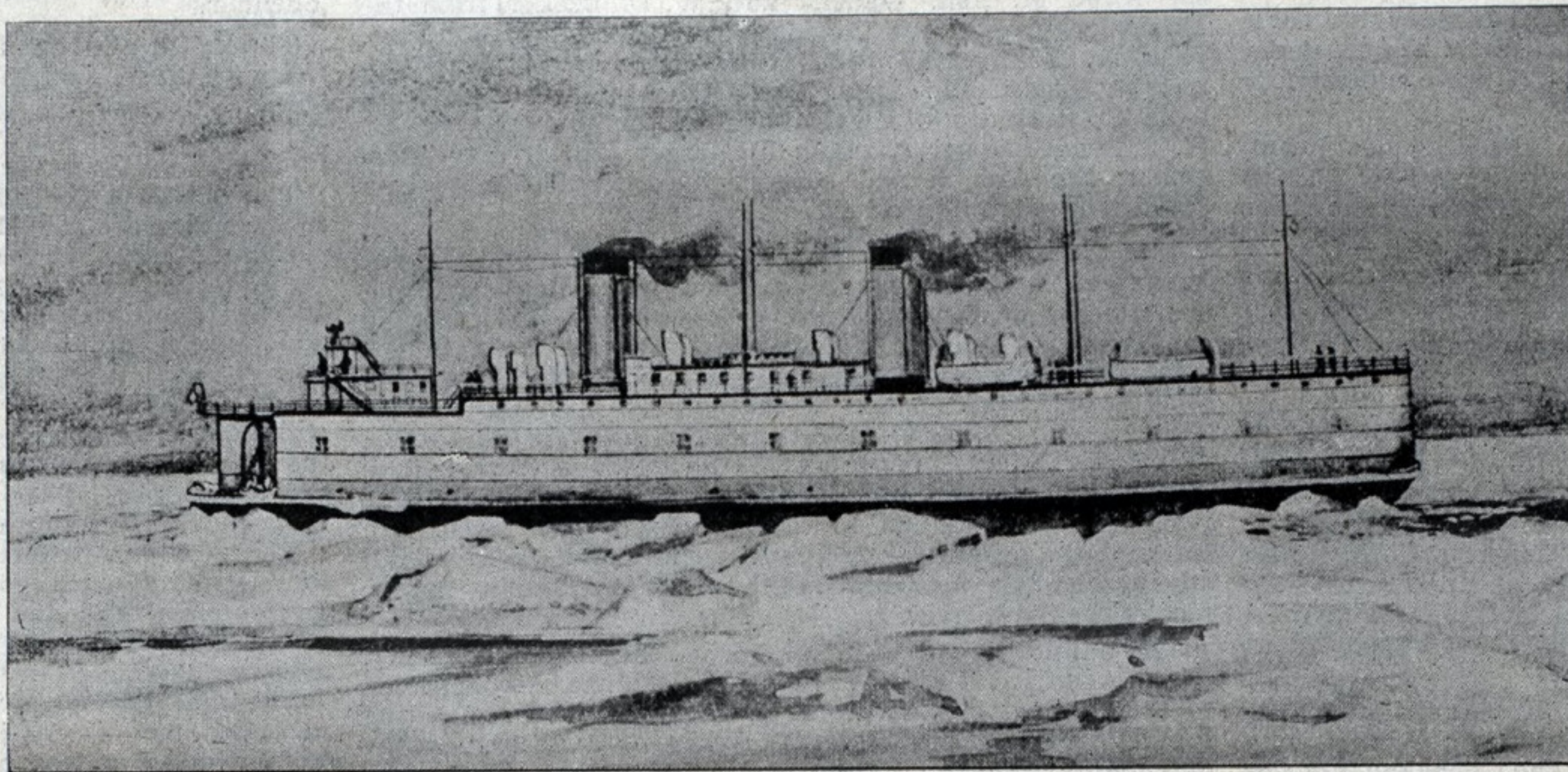
Brown, District Judge. In the afternoon of March 23, 1896, in clear, calm weather, the Irrawaddy, an iron steam ship 350 long, 1,697 tons net register, and drawing 21½ feet, while on a voyage from Granada to New York, with general cargo and about 20 passengers, struck on a coral reef near the southwestern part of Nevis Island, one of the Windward Isles. In about ten days, and after removing part of the cargo, she was pumped out and hauled off, towed into St. Kitts, and repaired sufficiently to complete her voyage to New York. A general average statement was then made up, in which the respondents, as cargo owners, were charged with \$3,459.93. Of this sum \$1,594.93 was on account of the loss and damage to the shipowners, the residue was for the damage to cargo. The respondents paid the amount assessed on account of the cargo, but refused to pay the amount assessed in respect to the alleged sacrifices of the shipowners, on the ground that the accident arose through the improper and negligent navigation of the ship too close to Nevis Island under instructions from the libelants, and also because the ship was not equipped with sufficient charts and sailing directions for navigation in those waters, nor was the master acquainted therewith. The libel was filed to recover the balance of the general average assessment.

The place of the stranding is approximately fixed by the testimony of the master of the Irrawaddy, who states that the southern extremity of Nevis bore from the ship E. ¾ S. The ship was stranded upon two ridges of rock, rising about six feet from the bottom running about E. and W., thirty feet apart, and each about twelve feet wide, and about sixty feet long. While the ship lay stranded the master took soundings and found five or six fathoms of water for a considerable distance around. The distance to the shore was not measured but was estimated at about three quarters of a mile. The master had not previously been in these waters.

The vessel was one of a line known as the Christall line, running between New York and the Windward Isles. She had taken on cargo at Trinidad, proceeded to Granada where she completed her loading, and left Granada bound for New York without further stop. In the direct course of such a voyage she would not naturally approach Nevis within ten or fifteen miles in following the sailing directions, or the special charts of that region. The superintendent of the line, however, had given instructions, and it was common practice for vessels to go much nearer to the islands along the route for the entertainment of the passengers, and the line was advertised to run in this way. A few minutes before the ship struck, the captain had consulted his blue print chart, which he testifies was the only chart supplied to him. This chart was upon a small scale, and gave no indication of reefs or shoals. The enlarged special charts of the Windward Isles indicate the proper course to New York, and refer to reefs and shoals along the west side of these islands which are to be avoided. The printed sailing directions supplied to the master do state that "the south coast of Nevis should not be approached nearer than a depth of twelve fathoms." The island is of volcanic origin and coral reefs are known to skirt its borders. The master states that the reefs on which he ran were known to fishermen. He himself was not familiar with the waters, but was told of the

usage to run within one-half a mile of the shore, and from evidence on the libelant's part it appears that other masters were accustomed, at times, to go near the shore for its interest to passengers.

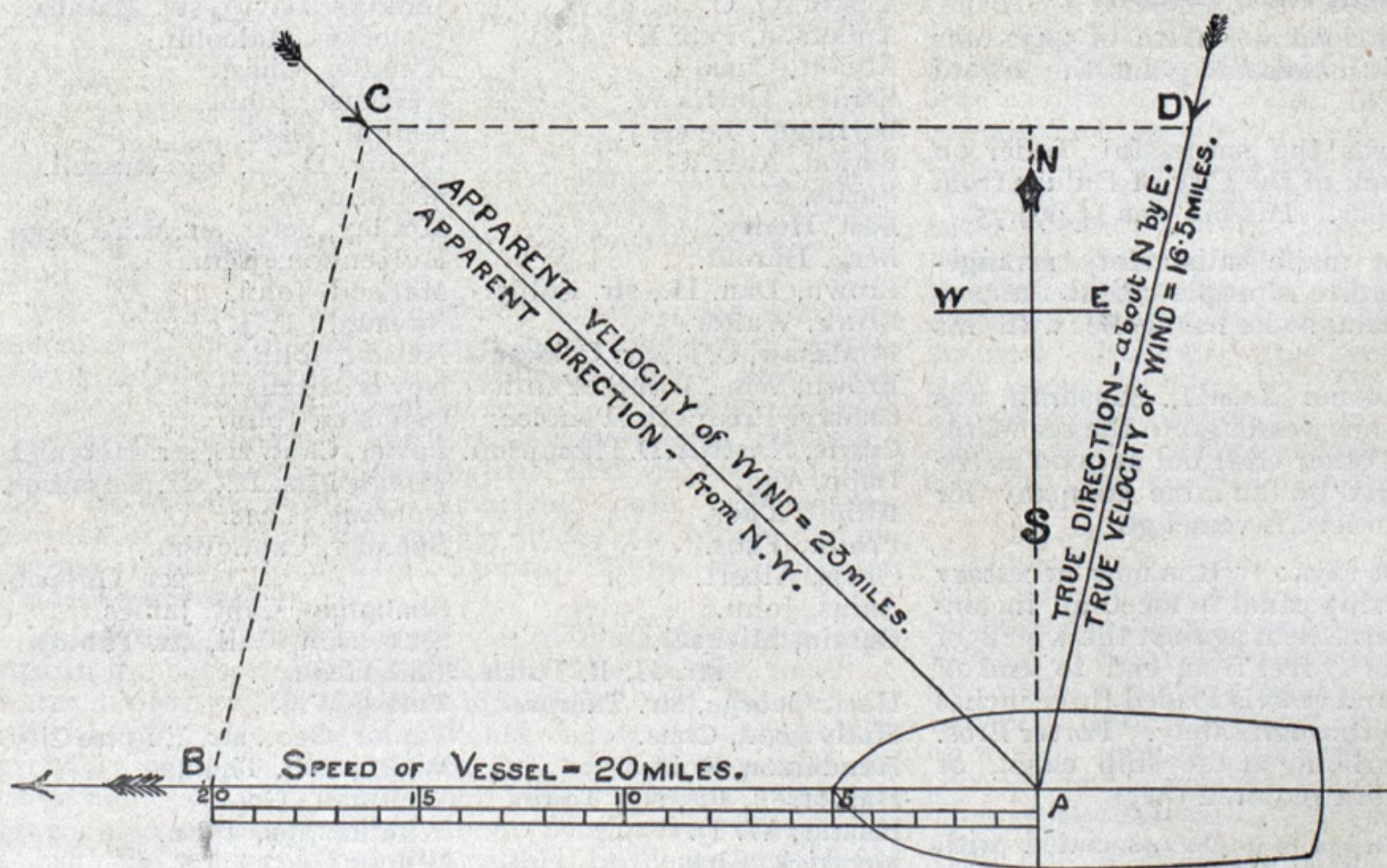
There is some evidence tending to show that a copy of the enlarged map was on board the Irrawaddy, brought on board by the previous master, Capt. Legg. His testimony on this point, however, is not positive, and the explicit statement of Capt. McMillan that he had no other chart than the blue print, should, I think, be accepted as correct. The enlarged chart shows an irregular contour line about the southwest portion of Nevis with an elbow-like projection marked on the chart ¾ fathoms, within 1,000 feet of the very spot marked by Capt. McMillan as the place where he stranded. Upon so small a difference as that, in the absence



A Russian Railroad Car Ferry Steamer and Ice Crusher, in use on Lake Baikal, Siberia.

Dimensions, 290 feet in length, 57 feet beam, draft under the usual steaming conditions, 18½ feet. Displacement, 4,200 tons. Shipped in sections from a British shipyard to a Siberian Lake.

of exact measurement of the reef from shore, I am by no means certain that the reefs on which the vessel struck are not designed to be marked by the projection of the three-fathom contour line above referred to. Had such a map been before the master, showing such an irregular contour line of ¾ fathoms at this point, which was ¾ feet less than his draft, it is scarcely conceivable that a prudent master, even under general instructions to give passengers a view of the shore of Nevis, would have ventured so near as within 1,000 feet of this projecting point. The absence of the enlarged chart, which the respondent's testimony shows ought to be in the hands of every navigator in these waters, I must therefore regard as directly contributing to the acci-



dent, and that for the want of it the libelants are responsible.

Aside from this, I am of the opinion that the instructions of the company to pursue navigation so widely deviating from the safe routes and so near to islands skirted with coral reefs, involves them in responsibility such as to exclude them from making general average charges for their own indemnity. The positive sailing directions that the south coast should not be approached nearer than a depth of

twelve fathoms, as well as the chart referring to the shoals, clearly points out the path of safety, and the danger of a near approach to these islands, and it should have been observed by all concerned, in the absence of thorough soundings, and of maps precisely locating the places of all reefs. The testimony on the part of the libelants seems to me wholly insufficient to establish the reasonable safety of the course taken, or to make it consistent with prudent navigation such as can rightfully charge cargo owners with the risks attending it, as risks properly belonging to the class of sea perils or dangers of the sea.

For these reasons I must hold the respondents discharged of any obligation to pay a general average assessment merely as indemnity to the owners for the own losses. In the recent case of *Chrystall vs. Flint*, 82 Fed. 472, it was held that where, under the provisions of the Harter act, the owner is exempted from responsibility for a negligent stranding, he might recover in general average for his own indemnity. This was upon the ground that in such cases the faults of navigation are no longer imputed by law to the owners as his own faults. The case has no application where the owners have failed to supply the master with the proper charts for the voyage, or where by particular instructions they have contributed to the imprudent navigation that led to the disaster. In such cases the owners are themselves in fault, and under the general rule are, therefore, precluded from having a general average charge for their own indemnity. *The Ontario*, 37 Fed. 222; *Van den Toorn v. Leeming*, 70 Fed. 251. The libel is therefore dismissed with costs.

THE APPARENT AND TRUE DIRECTION OF THE WIND.

The true direction of the wind differs from the apparent, according to the direction and speed of the moving object as herewith illustrated.

In the diagram let A, B, represent the course and speed of a vessel in miles per hour and C, A, the apparent direction and velocity of the wind in miles per hour, as shown by a vane on board the vessel; then connecting B, and C, and completing the parallelogram A, B, C, D, the line D, A, will represent the true or actual direction of the wind and its velocity in miles per hour. Suppose a vessel steaming along A, B, or west, 20 miles an hour, having the wind apparently along C, A, or from the northwest, twenty-three miles an hour, then the line D, A, must have the direction of about one point abaft the beam, its proportional length must be 16.5 miles. Therefore the true direction of the wind in this case is about north by east and its true velocity 16.5 miles per hour.

THE president of the Newport News Ship Building and Dry Dock Co., states that contracts have been taken by that firm for 3 steamships for the Morgan line. Negotiations

have been in progress with a view of obtaining these contracts for some time. The contracts represent fully \$2,500,000, and with the two battleships now being built at Newport News, will probably require a large additional force of men. Each of the new ships is to be provided with two steel masts and will be rigged with fore and aft sails. The average speed is expected to equal seventeen knots per hour when loaded. When complete the vessels will be placed in the service between New York and New Orleans, and they are calculated to make the trip inside of five days.

SOME ASTRONOMICAL NOTES FOR OCTOBER.

The sun spot record during the past month has been of special interest by reason of a large spot and its attendants, that came into view by rotation, the 3rd, and made the transit of the sun, disappearing the 14th. The main spot and its attendants were included in a common penumbra, and at one time extended in one direction more than one hundred thousand miles.

On the day of the disappearance of the large spot two small ones were observed near the sun's meridian, where there were no spots the day before. This is a rare occurrence as nearly all the spots are brought to view by the sun's rotation, and seldom originate on the face of the sun turned toward us. The great spot and its attendants seemed so permanent in its make-up that the writer confidently expected its return, and was therefore gratified on the 27th to find a group coming into view resembling in its outline and position the one sought; but it is only a miniature of its former self, of about one-fourth its former dimensions.

By reason of the usual monthly drift of the constellations those near the meridian at last report are now to be found about midway toward the western horizon, and those at that time well up in the east are now approaching the meridian. Arcturus is still visible in the early evening toward the northwest, but Antares is too near the horizon to be easily seen.

Toward the west Vega and Altair are readily recognized, and Fomalhaut, of the Southern Fish, may be found nearing the meridian toward the south. Capella is about midway between the horizon and zenith in the northeast.

Near the eastern horizon we gladly recognize the return of the well known Pleiades and Hyades, of Taurus, with the ruddy Aldebaran, the brightest gem of the latter group. These are the harbingers of the return of the more brilliant constellations that are wont to adorn our winter evening sky.

Jupiter will be lost to sight this month, by reason of his nearness to the sun. After the 13th he will be classed as a morning planet and will rise a short time before the sun. Venus will not attain her greatest brilliancy till the 27th, but by reason of her great southern declination can only be seen in the early evening twilight. She has now assumed the crescent phase and presents a beautiful picture in the field of a telescope, though she is too near the horizon for best results. Saturn is still visible toward the southwest in the early evening, and is still an object of beauty when seen through a telescope, but is much inferior in this respect to what it has been. Venus and Saturn will be in conjunction the morning of the 22nd, but they will be too far apart to be of special interest. The crescent moon and Venus, and Saturn will form an interesting group on the evening of the 18th. Mars rises too late to be of interest to those who keep seasonable hours, but he is improving in that respect. Mercury will not be conspicuously in evidence during this month.

Who can fail to enjoy these pleasant evenings, made glorious by the presence of the September harvest moon. The full moon in October has the same general characteristics, though less marked, as the harvest moon, and is known as the hunter's moon.

The sun is now some three degrees south of the equinoctial, and during the month will continue to increase his southern declination. He also comes to the meridian ten minutes in advance of local noon, and will increase that difference to sixteen minutes during October.

D. SATTERTHWAITE, Toledo, Ohio.

SUNDAY EXCURSIONS NOT A NECESSITY.

Police Magistrate Comfort, of St. Catharines, Ont., has given his decision in the case of the steam yacht Jubilee, plying between St. Catharines and Port Dalhousie, which was brought up by the Lord's Day Alliance for running passenger excursions on Sunday. In reviewing the evidence the magistrate was of the opinion that as the boat was running for mere gain and not in conjunction with any other means of transportation he did not deem it a necessity, and accordingly found the captain guilty and fined him \$20 and costs, to be paid in eight days, in default of which one month's imprisonment. He also fined the engineer \$1 or ten days.

The lightness of the fine shows that the magistrate himself does not believe in the antedileuvian statutes under which the act of taking a sail on Sunday remains a misdemeanor. The Dominion government ought to revise, if not totally abolish its old blue laws against Sunday travel as such enactments works against the progress of the country and markedly interfere with the liberty (not license) of the people of Canada.

PNEUMATIC RUBBER CLOTHING.

A new industry in the field is the manufacture of pneumatic rubber clothing, carried on by the Lion Tailoring Co., Milwaukee, Wis. Our attention was directed to this improved style of dress by our correspondent noting a recent test which was carried out at the Milwaukee life-saving station, and which showed the goods to be all that the manufacturers claim.

The illustration marked cut No. 1, pictures the Silbar



No. 1.

pneumatic waterproof coat inflated, and as worn by a member of the life-saving service.

The interior of the garment is much like an ordinary mackintosh, but the construction is entirely different, and in wet, heavy weather can be slightly inflated only, or, in the case of boat sailing, it may be fully inflated and worn as an ordinary overcoat, with the advantage that the wearer would have by being encased in a cork jacket in the event of his being washed overboard. Members of life-saving crews who have experimented with the coat speak in high terms of its



No. 2.



No. 3.

efficiency, comfort and durability. The actual life-savers' coat is made with three inflatable sections, so that if by accident one should burst or get punctured the remaining sections would easily float a person, or even in the event of two sections becoming useless, the third and remaining one can be inflated sufficiently to keep anyone afloat, so that

the garment is pronounced better than an oilskin for general sea or lake use, and in every way superior to a cork life-preserver in water.

The coat is "Silbar's Pneumatic Life-Saving Apparatus" (a late patent, which may eventually do away with the uncouth cork like-preserver, such as is worn by members in the U. S. Life-Saving Service.) Modern practice informs us that warm air infused in tight chambers remains impenetrable as against cold air, and remains so for hours, after which the wearer can readily replenish it, thereby keeping his body warm. Accidents from drowning in remote and unknown places, and at least expected, may overtake anyone, and make short work of him. As everyone knows, that air being lighter than water, and being the greatest life-preserver extant, if properly applied, and as no better way has as yet been found, than the application made in "Silbar's pneumatic coat," it is quite plausible that a person attired in same, will be fully protected against imminent danger of a watery grave.

The cut marked No. 2 is more for a traveler's outfit and was specially designed for Klondike or similar journeyings. The suit can be worn over another, as an ordinary overcoat is worn over a suit. The contracting and expanding of the air chambers makes it larger and smaller respectively, thus giving the wearer ample room for heavier underclothing.

These suits it appears are made of extra-heavy double texture, consisting of a layer of rubber pressed between a backing of heavy sheeting, tightly woven, being strictly air-tight and water-tight, the hood is lined with heavy mackinaw which by means of a cord, (invisible in the cut) pulls it down closely and snugly around the wearer's head. The overlap causes all rain or sleet to run off, without touching the body, thereby protecting the neck, shoulders and chest. Thus the head is kept warm and dry.

Cut No. 3 shows the Silbar pneumatic swimming suit for ladies, made upon similar lines to those of the men's suits, the same principle is involved, and, whether the wearer is able to swim or not the suit gives a perfect feeling of safety when bathing.

A LARGE DREDGE.

The Standard Contracting Co., of Cleveland, have now at work on their Conneaut contract an elevating and conveying dredge, the largest on the lakes. The power with which the machinery is operated is generated by a Scotch type boiler, 10x12 feet, with 360 three-inch flues. The main engines are double, their dimensions being 18x20 feet, and are of the high pressure type. In the main engine room is stationed the electric lighting plant with ten arc lamps, the ballast pump 5¼x6, and a centrifugal pump, with twenty-inch suction, throwing an eighteen-inch stream, which is operated by an independent 12x18 high-pressure engine. The hull of the dredge is egg shaped, and beginning at the forward part is divided in the centre, the division extending about half the length of the hull. Through this division, operating on a huge sprocket gearing, is a series of forty-eight buckets, each with a capacity of ½ cubic yard, which will operate in twenty-five feet of water. These buckets run on what is called a hoisting ladder operated by engines 14x16 forward and starboard. As the buckets turn at the upper sprocket, which is elevated perhaps twenty-five feet near the forward part of the machine, their contents are emptied into a tank, in connection with which is a chute extending out over the land. This chute is 150 feet long, and is supported by a heavy A frame, eighty-five feet high. When the mud is emptied into this chute, the use of the powerful centrifugal pump before mentioned becomes evident, for it is the velocity of the stream of water from the pump that forces the mud the entire length of the chute and out onto the land. And here the necessity of the ballast pump also becomes evident. By means of this, a large tank on the opposite side of the dredge is filled with water to offset the immense weight of the mud on the other side.

The series of forty-eight buckets makes one revolution every two minutes, thus the effectiveness of the machine can be readily seen. There are accommodations aboard for a crew of fifteen.

THE GARDNER GOVERNOR COMPANY, Quincy, Ill., has issued a new catalogue illustrating and describing pumps and pump governors, balanced lever valves, steam engine governors, etc. These pumps are constructed to meet the requirements of different services. Boiler feeding, fire pumps, water works pumps, etc., are shown both simple and compound acting. The catalogue contains some useful information on the erection and management of pumps and is 5¼x7¾ inches.



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CLEVELAND, O., OCTOBER 6, 1898.

At a meeting of the executive officers of the Lake Carriers' Association held on Saturday it was decided to advance the wages of sailors. The advance will mainly effect firemen and deck hands, the former's wages being increased \$7.50 and the latter \$5 per month.

THE Nicaragua canal proposition as it stands at present provides for the construction of the canal by the United States government, and authorizes the issue of \$100,000,000 of government bonds for that purpose. Of the amount raised by the bond issue, \$5,000,000 is to be given to the old Nicaragua company, as compensation for such rights as have been acquired and the expenses which have been incurred by the company, and an additional \$7,000,000 of stock in the enterprise. Stock is also to be issued to the governments of Nicaragua and Costa Rica, each of which is to have a representative on the board of directors.

CAPT. O'NEILL, chief of the Ordnance Bureau of the Navy Department, expresses his belief that the results of the recent tests of Krupp armor plate at Indian Head, insure the adoption of Krupp armor for the three new battleships. The Krupp process, the use of which has been acquired by the Carnegie Steel Co., probably settles the long Congressional controversy over armor plate. Capt. O'Neill says Congress cannot refuse to vote the money for the new plate, the price of which will be about \$525 a ton. As the process is patented, the government cannot undertake to make the plate. It was proposed to do this with the Harveyized plate, when Congress determined that it could be made for \$300 and steel companies refused to turn out at less than \$400 a ton. In the construction of the battleships Oregon, Iowa and Indiana, an average of 3,000 tons of armor plate was used. The new Krupp plate will increase the cost of the battleships \$500,000 each.

THE three great natural links to interlake navigation are the Detroit river, Lake St. Clair and the St. Clair river and the St. Mary's river. The two first noted intervene between Lakes Huron and Erie, the St. Mary's river between Lakes Huron and Superior. The St. Mary's river was formerly a total obstruction; Lake Superior was shut off. The St. Clair flats gave a depth of 9½ feet up to 1858, when it was increased to 12 feet, and this was increased to 16 feet in 1874. Eleven years ago the work of deepening this channel to 20 feet was begun, and it is now practically complete. In the meantime the government enlarged the lock in the St. Mary's falls canal, so that there was 21 feet of water on the sills of the lock, the latter and the prism of the canal being enlarged, so that ships of 17 feet draft could ply in the Lake Superior traffic. These vessels carry from 5,000 to 6,500 tons of ore—or of grain—and the result has been something next to wonderful.

THE QUEBEC INTERNATIONAL CONFERENCE.

From all that can be learned regarding the action of the Anglo-American conference now being held at Quebec, it is probable that a treaty embodying a general adjustment of all questions will be made and will be such as to meet the approval of both the United States and British governments. In all probability the conference will adjourn about the 8th of October, to meet in Washington in November, when the work of the commission will be completed and the treaty prepared for submission to the Senate.

The twelve original questions in the protocol have all been thoroughly canvassed by the commission, and they have arrived at a basis of agreement upon nearly all of them.

In the matter of the alien labor question, it is likely that the Canadian government will adopt laws similar to those of the United States, checking the importation of objectionable European cheap labor, but relaxing the rigorous laws as now applied to native born citizens of both countries.

The question of the mining rights of the citizens or subjects of each country within the territory of the other has not been fully settled.

The treaty of 1817, which prohibited the building and maintaining of war vessels on the Great Lakes beyond one revenue cutter for each government, will probably be modified to the extent of permitting the lake shipbuilders to compete with the Atlantic and Pacific shipbuilders in supplying the government with naval craft.

The other minor questions will be satisfactorily settled. The great question of commercial reciprocity seems to have forced itself before the commission, but that, according to the best information obtainable, is in a fair way of adjustment.

The lumber industry, the most important of all industries in the United States, unless it possibly be the agricultural industry, will, no doubt, secure practically what it has demanded of the joint high commission. The \$2 rate on Canadian sawed lumber will remain, except that the best grade of Canadian pine lumber will be admitted free or at a reduced rate. In return for this the Ontario law prohibiting importation of Canadian saw logs into the United States will be repealed. It is understood that this adjustment of the question is entirely satisfactory to United States lumbermen, as there is a scarcity of high grade pine lumber in the United States.

Probably little change will be made in the tariff rates on Canadian agricultural products, or in the Canadian duties now imposed upon American manufactured goods.

The American commissioners say there is no cause for apprehension on the part of Americans that the industrial system of the United States is to be disturbed. They declare that none of the great industries will be sacrificed, and that only such changes will be made in tariff rates as will be mutually beneficial to both countries.

THE LARGEST LAKE VESSEL.

The steel steamer Samuel F. B. Morse, has the distinction of being the largest vessel on fresh water. "She was built," says her managing owner, "to move 6,000 gross tons on the present Lake Superior draft, and she has done that. She was not built with a view to putting into her every ton of cargo that could possibly be moved in a hull of her dimensions. She was intended to tow a steel barge, the largest on the lakes, and probably two such barges, and the indications are that she will eventually tow to big barges at a rapid rate.

"On her second trip to Lake Superior she made 14½ miles for a time, going up light, and when returning with ore she made 13½ miles all the way down. The chief engineer of the line was of the opinion that, with another wheel suited to fast running, the Morse would attain a speed of 17 miles. Her engines are still stiff, and it has not been found necessary as yet to work them up to anything like their full power.

"The problem of finding lines and attachments that admit of two big steel barges being towed by this powerful steamer (the three carrying approximately 20,000 gross tons), did not seem especially difficult. The experiment would be tried. The steamer Stevenson, with the Roebling and Nasmyth in tow, had moved 17,490 tons of ore from Lake Superior only a few weeks ago. All weights were taken into account when the Morse was designed. Her gross displacement on 17 feet draft was figured at 10,500 tons. Take from this 4,125 tons representing weight of machinery, boilers and other parts, and the capacity of the ship in net tons on 17 feet is found to be 6,375 tons; add 260 tons for the excess of draft over 17 feet and we have 6,635 net tons. The Morse's last cargo was equal to 6,720 net tons.

"The general dimensions of the Morse are; 476 feet over

all, 456 feet keel, 50 feet beam and 29 depth. Engines are of the quadruple-expansion type, with cylinders 26½, 37, 54½ and 89 inches diameter, and a common stroke of 42 inches. There are four Scotch type boilers, each of 13 feet 4 inches diameter and 11 feet 6 inches length and allowed 200 pounds working pressure."

TO CHANGE AN AID TO NAVIGATION.

It is believed that the Light-House Department made a mistake when they located the fog signals, built in 1896, at Eagle Harbor. They should have been placed at Eagle river, as Eagle river is midway between the two reefs, and as the prevailing winds are from the west, it is impossible for down bound vessels to hear the fog signals, as they are eight miles east of the station. Eagle Harbor has good water within hailing distance of the land, while at Eagle river the reefs are out one mile from shore and about five miles long, with rock bottom, and water ranging from six to seventeen feet.

The only aid to navigation that the government has established at Eagle river is one of the old style, sixth order light-houses, built in 1858, and there has been some talk of discontinuing that. Whether it is or not it can be shown that within the past eight years four large losses have occurred at that point, the Viking and Michigan was a \$35,000 loss in 1890, the James Pickands a total loss four years later, and the Colorado this season, thus showing a property loss of about \$235,000 in the period of eight years, or an average of nearly \$30,000 per year.

LAKE FREIGHTS.

There is a strong upward tendency in freights and from this on to the end of the season vessels expect fair living rates. A 5-cent advance on iron ore may be quoted from Escanaba as the latest charters are at 60 cents, but to Buffalo instead of an Ohio port. From the head of the lakes 75 cents has been paid and brokers claim that 80 cents could now be obtained, but the Duluth grain movement is very brisk at 2¼ cents, so there is a lack of tonnage seeking ore charters. Seventy-five cents has been paid from Ashland to an Ohio port, so the 80-cent rate could no doubt be obtained. Chicago grain rates hold steady at 1¼ cents on corn. Milwaukee is quoted at 2 cents on wheat, 1¾ cents on oats and 1 cent on barley. Erie canal rates rule at 2¾ cents on corn to New York. A Duluth charter was reported at 2½ cents to Cleveland, but the former figure prevails to Buffalo, although a million bushel charter to run through October has also been placed in advance at 2½ cents to Buffalo. Toledo to Kingston, 2½ cents on corn. In coal freights 30 cents has been paid, Toledo, Sandusky and Erie to Lake Michigan, with 25 cents from Buffalo, while the Lake Superior rate is still at 20 cents, except the Portage rate, to which port as high as 35 cents has been paid, but 30 cents only is quoted.

LAKE ERIE FISHERIES.

The lake herring is a wonderful variety of fish. In spite of the thousands upon thousands of tons of them that have been taken from Lake Erie in the last few years, they are more abundant than ever, and they are the only lake fish of which that can be said. Sometimes the nets will be so jammed with herring that the market will be over supplied.

In none of the other Great Lakes do the conditions of fish seem to be so favorable as in Lake Erie. This is due in a great measure, fish culturists think, to the variations in the depth which are peculiar to that lake. The western end is shallow, and thus provides vast areas for spawning grounds. The deep water at the eastern end is an almost boundless retreat for the half grown young. The line between deep and shallow water seems to be drawn at Cleveland, for west of that city the water is not more than sixty feet deep any where, and the average depth will perhaps fall below forty. East of that line the water grows rapidly deeper until it reaches a depth of 225 feet in some places.

It is estimated that 6,000 tons of fish are salted at Lake Erie ports alone annually, not less than 5,000 tons are frozen and probably 2,000 tons are smoked. The amount of fish sold from Lake Erie ports fresh, which is principally a local trade, will reach 18,000 tons a year. These figures represent the catch of Lake Erie only. The other lakes west of Erie add something like 50,000 tons to the annual total of the supply. While Lake Erie produces more fish than any of the other lakes, the whitefish of Lake Superior surpass those of Lake Erie in quality—as they do all other whitefish. The lake trout of Lake Superior are also the finest in the world. Lake Michigan produces a close second to Lake Erie in whitefish, and exceeds all the other Great Lakes in amount of lake trout.

LAKE BARGES FOR THE OCEAN.

H. T. Morley is among those who take an interest in the project of sending lake tonnage to the ocean, and his views on the subject are interesting. He says:

"The Atlantic Transportation Company, which is chartering a large number of barges to take down to salt water, has had our steamer, John J. Hill, under charter for two or three months. Messrs. Sherwood and Besse, managers of this company, are gentlemen with whom it is a pleasure to do business. It is perhaps due to my several conversations with Mr. Besse, that he has come to the lakes after a fleet. While working for this company the Hill carried coal from Newport News to Long Island Sound ports. The business, however, covers all ports from Newport News to Eastport, Me. This same company has the whaleback City of Everett under charter, besides a large fleet of steamers, tugs and barges most of which it owns. It seems to have exclusive control of shipments from the Chesapeake & Ohio railroad.

"It is not particularly expensive work to take a lake steamer to the Atlantic. The Hill was loaded with enough coal, placed well forward, to make her draw nine feet. The only expense outside the ordinary cost of running the ship were canal tolls and pilotage. The Hill, however, has machinery and hull built for salt water service. An ordinary lake steamer would require some modifications as to machinery, principally a surface condenser in place of a jet. A ship also requires different papers from those in use on the lakes or there are government fines and trouble. The voyage is not more dangerous than the ordinary lake navigation except that in case your vessel is too large to pass through the smaller St. Lawrence canals it will have to pass over some big rapids. About all there is to that is to place the ship in the proper channel at the beginning of the rapids and trust in providence. There are fewer accidents than might be supposed. From Montreal to New York it is plain, easy navigation, that any good man can run with charts.

"One great difference between the business methods of the lakes and those of the ocean is in the handling of cargoes. The lake practice is much more rapid than that on the seaboard. All cargoes are slow there in comparison with the lake practice, wood cargoes especially so. In the coal trade barges are run much cheaper than with us. Four men or three men and a woman are a crew for a barge that will carry 2,500 long tons. The steamers are much more costly in the matter of crews than with us on the lakes. The barges are not attached to certain steamers as permanent consorts, but when a steamer is ready for sea, a tow is assigned her from a waiting fleet of barges. There seems to be a good paying business for barges. A barge is insurable at a less rate, class for class, than a steamer. Crews' wages are more in summer than in winter. If anything, sailors' wages are lower on salt water than on fresh.

"Business is decidedly better for shipping on salt water than it is on fresh. Everything considered, there are many things in connection with the latter which would make a lake owner's heart glad. The business is peculiar and one has to know where to find it to the best advantage. The Hill is now chartered from voyage to voyage and is doing much better than formerly."

TO BUILD AS WELL AS CHARTER.

The chartering of about 30 vessels from the lake fleets by the Atlantic Transportation Company, of New York, is creating quite a stir among the owners of small or medium sized vessels. It is reported that the New York Company, will build in lake shipyards a fleet of barges, with a carrying capacity of from 36,000 to 45,000 tons in addition to the lake vessels chartered.

The Atlantic Transportation Company, is a New Jersey corporation of \$3,000,000 capital, with headquarters at New York. Mercantile agencies have been called upon for numerous reports regarding the company, and they are all of a very favorable kind. The charter price of the vessels taken ranges from \$1,500 to \$4,800 a year. All charters excepting those of the Gilchrist fleet are for three years, and all the contracts fix a price at which the owner of the vessel will sell the boat at the end of the first year.

Payments are to be made monthly at the Commercial National Bank of Cleveland. The Gilchrist contracts are for nearly five years and the terms are probably more favorable. It will be noted that nearly all the vessels are of the 1,500 ton class, and of shallow draught, so it is not believed there will be any difficulty in running them over the St. Lawrence rapids. The Atlantic company is already in possession of a big fleet of vessels, but will require more, as its contracts involve the movement of 4,000,000 tons of coal annually from

Newport News to New York, Boston and New England points. All of the boats will be able to run the rapids to the St. Lawrence river. Capt. J. J. Rardon, of Chicago, who has run the St. Lawrence rapids 32 times, says there is no danger if the boats are lightened up so that they do not draw over eight feet. It is nearly impossible, he adds, to get a vessel against a rock as the current is so swift that it keeps the boats in the channel, and forms a cushion around the obstructions.

THE HEAVENS IN OCTOBER.

Astronomical data for October, 1898, furnished by the Washburn observatory: Mercury passes superior conjunction October 19, becoming an evening star. Venus is still the bright evening star in the southwest. The planet reaches its greatest brilliancy October 27, on which date it will set at 6 h. 27 m. p. m. Mars is seen high in the morning sky to the east, and rises from 10 h. 50 m. to 10 h. 0 m. p. m. Jupiter is close to the sun and passes through conjunction Oct. 13. Saturn is low in the southwest in the evening, and sets from 8 h. 30 m. to 6 h. 40 m. p. m.

The times of sunrise and sunset for the month, at Milwaukee, are as follows:

	SUNRISE		SUNSET.
October 1,	5 hours, 49 minutes.	5 hours, 33 minutes.	
October 11,	6 " 0 "	5 " 15 "	
October 21,	6 " 12 "	4 " 59 "	
October 31,	6 " 25 "	4 " 45 "	

The times of the moon's phases are:

Third quarter, October 7,	12 hours, 5 minutes, p. m.
New moon, " 15,	6 " 37 " a. m.
First quarter, " 22,	3 " 9 " a. m.
Full moon, " 29,	6 " 18 " a. m.

The principal fixed stars visible in the evening hours during the month are: To the west, Vega and Altair; to the east, the bright stars of the constellations, Andromeda and Cassiopeia, and the stars Aldebaran, the Pleiades, and Capella.

FIGURES ON TONNAGE.

In 1897 18,982,000 net tons passed through the St. Mary's Falls canal, 10,633,000 tons of which was iron ore. In 1890 the ore tonnage of the canal was 4,774,000 net tons, so it had about twice and one-half doubled in eight years. The total carrying trade of this channel is double that of the Suez canal, and a trifle greater than the combined entries and clearances of London and Liverpool.

Relative to the latter statement there would appear to be some qualification necessary as we find from the annual statement giving the number and tonnage of vessels paying rates to the Mersey Docks and Harbor Board, for the year 1897 that tonnage of 9,672,918 paid dock rates, compared with 9,486,075 tons in the previous year, an increase of 185,943 tons. The tonnage paying harbor rates only amounted to 2,142,458 tons, against 1,986,446 tons, an increase of 156,012 tons. The grand total of the tonnage using the port for the year ended July 1, 1898, was 11,815,36 tons, against 11,473,421 tons in the previous year, an increase of 341,955 tons. In a note regarding these figures, the following occurs: "This tonnage represents the net register tonnage of vessels paying rates to the board inwards or outwards, as the case may be. To arrive at the total tonnage which entered and the total tonnage which left the river Mersey, it is necessary to double the figures. The approximate total tonnage inwards and outwards would therefore be 23,630,752 tons for 1897."

These figures are entirely independent of river, flat or local tonnage, which if included as daily arrivals and departures would, roughly speaking, about double the figures.

THE COMMERCE OF BUFFALO.

Custom House figures show a good business at Buffalo, both in receipts and shipments, for the month of September. The shipment of coal amounted to 396,815 tons; salt, 84,614 barrels; cement, 155,971 packages; sugar, 218,982 barrels. While coal shipments are 47,110 tons less than during August, the exportation of salt, sugar and cement have been considerably in excess of last month.

Grain receipts were heavy, amounting in round numbers to 26,564,121 bushels, or nearly a million bushels a day on an average. This amount was distributed as follows: Wheat, 10,192,436; corn, 6,538,889; oats, 7,315,622; barley, 891,220; rye, 811,856; flaxseed, 814,098 bushels. Flour receipts were 1,439,780 barrels; feed, 260,963 sacks; malt, 100,291 sacks. Lumber receipts amounted to 17,494,000 feet, and shingles, 13,975,000; iron ore to the amount of 144,843 tons was received.

Reports from the canal collector's office show a healthy

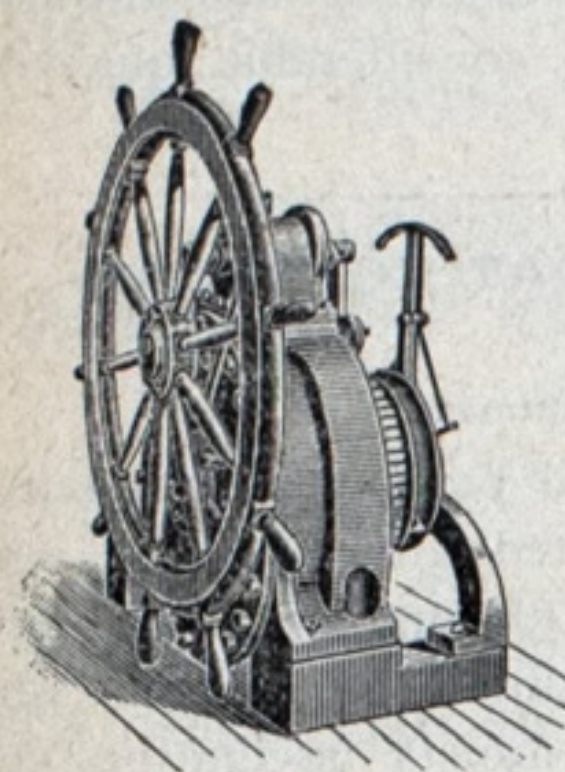
condition of trade. The total number of clearances issued during the month was 643, an average of 21 boats daily. Corn shipments amounted to 2,929,777 bushels; wheat, 264,100; barley 190,639; oats, 264,403; flaxseed, 10,396,592 bushels. Over 4,000,000 feet of lumber, 1,545,152 tons of pig iron, and 2,611 564 pounds of merchandise was shipped over the State canal, not including a considerable quantity of miscellaneous traffic.

SYRIAN PORTS AND FLOATING BREAKWATERS.

(Liverpool Journal of Commerce).

Syria, it is said, was a thriving and populous dependency in ancient days. Sesostris, a celebrated King of Egypt, who in 1839, B. C., conquered Ethiopia, Phœnicia and all Asia Minor, introduced or extended commerce by sea and sent ships to Jaffa. Sesostris was a cultivator of navigation, and he sailed down the Red Sea in command of four hundred large ships and seized all the islands and territories on the coasts as far as India. His sailing ships, according to historical reports, were capable of carrying an immense army of cavalry and infantry, besides horses and chariots. Jacob sent his son Joseph, from Palestine, balm, honey, myrrh, spices, nuts, and almonds. It is evident, therefore, that the soil was capable of producing fruits and cereals, but unfortunately for the inhabitants of the country, became subject to Turkish rule. Harbors were neglected and never improved. St. Jean d'Acre is admirably situated for commerce, but vessels of deep draft have to anchor in the roadstead, and nothing has ever been done to provide shelter for shipping. The railway from the port of Acre through the rich plains of Hauran (Bashan) to Damascus, and thence to the head of the Persian Gulf, will no doubt lead to the construction of new works or the deepening of the harbor. Sir Douglas Fox, engineer-in-chief, mentioned in March, 1894, that the opening of Central Syria by the main line of railway and branches therefrom, would so enlarge the import and export trade as to induce owners of steamers to establish a regular line to Acre and the United Kingdom. It is evident, however, that local interests cannot be relied upon to extend shipping facilities, and the government of the Sultan is powerless to find capital for such purposes. The port of Jaffa is rising in importance, and the district in which it is situated for its products of the soil. Mr. Consular Agent Amzalak, in his annual report on the trade of Jaffa for the year 1897, refers to the bad anchorage and insecure landing at Jaffa, which, he says, has caused the loss of many lives of visitors to the sacred sites of Palestine. Only last December a party arrived there in their yacht, and on attempting to land in one of their own boats, were very nearly drowned, had not a native boat which happened to be near gone to their rescue. Recently, a native boat carrying passengers from the Austrian mail steamer was dashed to pieces by the waves upon the reef of rocks near the landing place, and left ten European and Ottoman pilgrims to the mercy of the breakers. Four out of the ten passengers perished, and the others were saved, the consul declares, almost by a miracle. The construction of a breakwater to protect the harbor, the consul believes, would be too costly for the authorities to entertain, the limited commerce being insufficient to secure a dividend on the expenditure. Jaffa, it is pointed out, is the seaport at which tourists land on their visits to the sacred places of Palestine. These excursionists are mostly composed of the wealthy classes from Europe and America, but not of the masses. If the port of Jaffa were made more inviting it is likely that pilgrimages to the Holy Land would be rendered less expensive, and the middle crust of society might put in an imposing appearance at Jerusalem, and show in greater numbers. But the landing in small boats when the wind is from the sea and driving waves before it must constitute a danger, apart from the unpleasantness of wet clothes. Considering how many years the late Mr. Austin, C. E., devoted to his advocacy of floating breakwaters, it seems astonishing that these contrivances for breaking the force of waves have not been adopted. Mr. Austin demonstrated from experiments that if surface seas could be smashed before rolling up a harbor, vessels inside the latter could ride in perfect security. The cross beams and bars of the wooden breakwater acted as meshes to intercept waves, and to break them up in such a manner as to render them harmless. Stone piers run out from shores stop the natural or direct flow of tides, and make the use of groins in some instances a necessity. The cost of a floating breakwater is very small compared with a massive stone structure. In gales of wind the waters in rivers and harbors is, as a rule, rather rough, and no invention can subdue the elements. A floating breakwater moored so as to give when struck by a heavy sea would ride safely. Under exceptional conditions a wave might roll over the top, but a wire netted vertical railing fore and aft amidships would split the surface sprays as they rolled to leeward. At all events such a contrivance would serve as a sort of compromise and admit of landing without swamping of boats. Specifications of expired patents would perhaps throw some light on the designing process.

Queen City Patent Hydraulic Steerer.



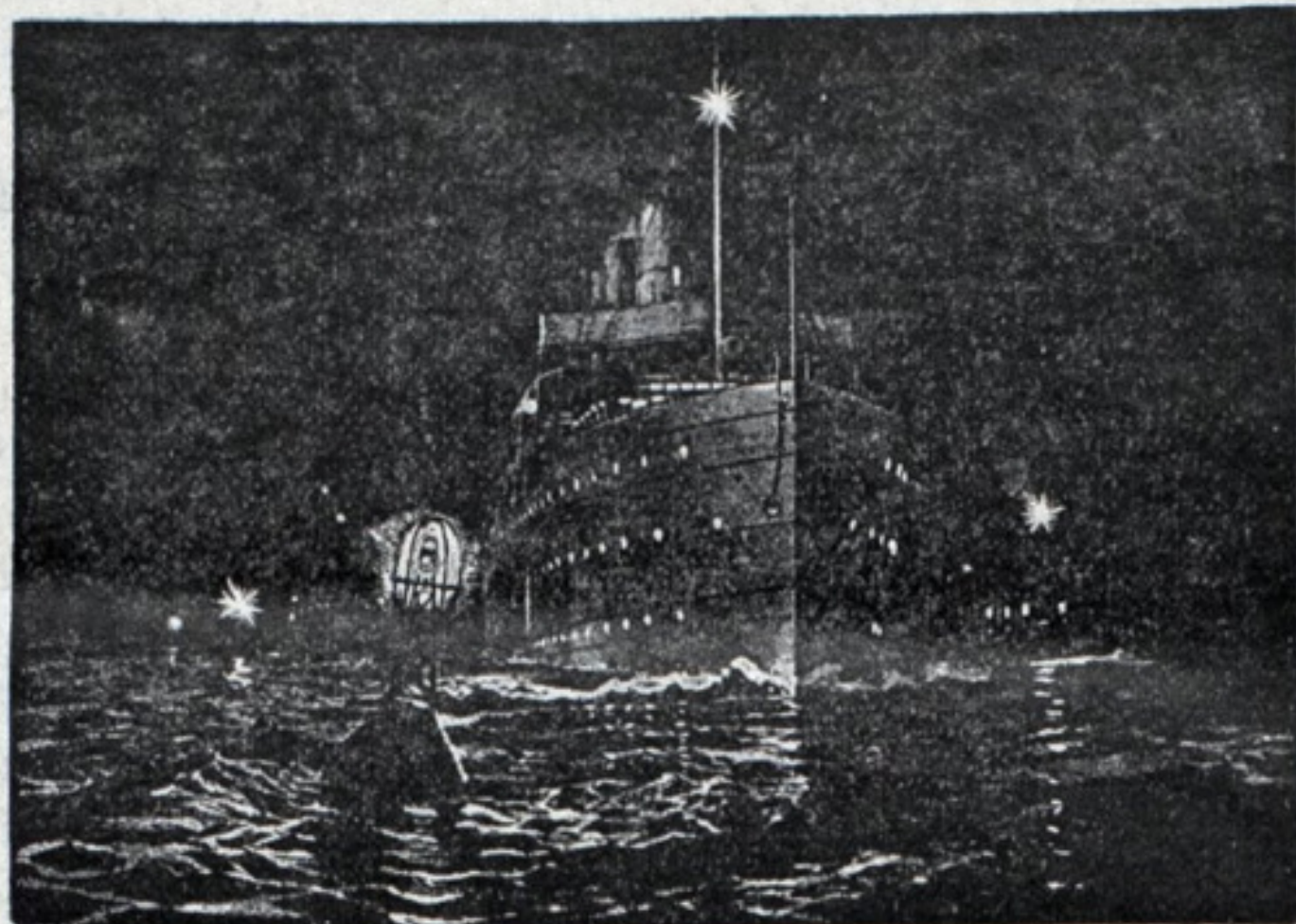
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Straits of Mackinac Chart

The Hydrographic Office has just issued a new survey of the Straits of Mackinac, extending from Sturgeon Point and Thunder Bay on the East, to a meridian running through Point Betsie on the West.

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We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

THE AUTOMATIC RELEASING HOOK.

NEW YORK, October 4, 1898.

To the Editor of The Marine Record:

SIR:—In the issue of American Ship Builder of September 29, appears (to me) an interesting article calling ship owners' and masters' attention to the necessity of adopting a simple and effective device with which, at a critical moment, ships' boats could be expeditiously lowered and detached from the falls without endangering the occupants of the same, and afterwards readily re-attached, even in a heavy sea. The necessity for such an appliance was made manifest during a trip across the Atlantic in the steamer Germania in the early seventies. On approaching the Irish coast we encountered a dismasted barque that required assistance. Capt. Kennedy ordered away a boat and the second officer was placed in command with a volunteer crew. I was in close proximity while the boat was being freed from her lashings, lowered and detached from the falls, and came to the conclusion that in the event preserving life depended upon the expeditious freeing of the boat from the ship in an emergency, the delay would have been fatal, even if rigid discipline had been maintained. Having made 22 voyages across the Atlantic in the Cunard, White Star and German steamers, and interested in the various life-saving appliances, I have carefully considered the different types of boat detaching appliances that have come under my observation, and at the present moment I can refer to only one device which, in my opinion, for simplicity of parts and rapid effectiveness, surpasses anything heretofore coming under my observation. I allude to the device submitted by the Standard Automatic Releasing Hook Co. which can not fail to impress any unbiased person with merits that do not obtain in other systems.

There is another element that should be carefully considered by masters and ship owners; that is fire, due to spontaneous combustion. While in London last, I witnessed elaborate demonstrations with a device that, in my opinion, would prevent spontaneous conflagration in a ship's cargo. The method adopted was flooding a compartment with a

gaseous composition after the cargo was stored. The composition was a positive preventative against fire and not injurious to the cargo.

J. L. LAY,

Ex-Engineer, U. S. N.

VISIBLE SUPPLY OF GRAIN

As compiled for The Marine Record, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo.....	322,000	1,211,000	572,000	58,000	391,000
Chicago.....	1,183,000	8,982,000	852,000	119,000	86,000
Detroit.....	83,000	146,000	13,000	11,000	5,000
Duluth and Superior	2,023,000	1,088,000	106,000	44,000	327,000
Milwaukee.....	7,000				69,000
Montreal.....	80,000	15,000	332,000	13,000	7,000
Oswego.....					20,000
Toledo.....	243,000	163,000	46,000	12,000	
Toronto.....	28,000		5,000		18,000
On Canal.....	17,000	1,342,000			110,000
Grand Total.....	11,263,000	21,406,000	5,447,000	771,000	1,620,000
Corresponding Date, 1897.....	21,104,000	37,048,000	10,719,000	2,889,000	2,278,000
Increase.....	1,955,000	1,754,000	693,000	25,000	464,000
Decrease.....					

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

IRON ORE STOCK PILES DISAPPEARING.

By the end of the shipping season there will not be much ore left in stock at any of the mines of Ishpeming, Mich. In fact a number of piles that have stood in part for some years past have been shipped. The Lake Superior Iron Co. has a part of but one pile left. That is at the section 16 property. The last of the ore remaining at other mines operated by the company was cleaned up this week. Considerable of the ore shipped this season had been in stock at the mines for several years. The pile that stood at the Lake Superior No. 6 shaft has been shipped. It was necessary to crush some of that ore and since the plant was installed at section 16 all the ore to be crushed has been treated there.

The ore still remaining at section 16 will pass through the crusher before it will be shipped. There will be very little if any of the ore in stock there by the close of navigation. It is being crushed and shipped right along, and all the ore hoisted from the mine is also going through the crusher.

There will be some ore left at the Cliffs shafts mine at the close of the season. There are now about 7,000 tons in stock. This could easily be crushed and sent out, but the company will have no trouble filling all the orders received from the ore being hoisted. The crushers at this mine are working splendidly, and every pound of ore coming from underground is passing through them. The crushers will be operated steadily through the winter and the ore treated will be stocked.

There is still quite a lot of ore at the Cleveland lake mine, though the pile is getting smaller right along.

EASTERN FREIGHT REPORT.

The eastern freight situation as furnished the RECORD by Messrs. Funch, Edye & Co., New York, is as follows:

The list of charters, both for grain and cotton, although quite large, would show a considerable increase, were it not for the fact, that owners of prompt tonnage are holding back, in hopes of still further advancing rates, which, in the meanwhile, in grain show an appreciable gain, freights for Cork f. o. and for picked ports having advanced to 4s. and 3s. 7½d. respectively. Cotton freights have equally stiffened up, as subjoined list shows. The enquiry is mainly, however, for October loading for both commodities, and for later months the enquiry is less urgent and shippers disinclined to pay present figures, except for small boats to Cork f. o. which could be placed at 4s. for November. The sharp demand for prompt tonnage has caused an advance in time charters for near-by vessels, and led to figures being yielded for time boats for the Trans-Atlantic and eastern trades considerably in excess over those secured for quite a long time back.

The market for sailing vessels shows no improvement. Square rigged tonnage is getting rather scarce, but under the present very light demand, very little only has been accomplished and rates remain unchanged.

SWEDEN is going to build a railroad from the head of the Gulf of Finland to the Ofoten Fiord, on the Norway coast, 120 miles north of the Arctic Circle. The line to the Gellivare mines will be used, and a branch run from the present northern end of the Swedish railroad system to Tornea, on the Finland Gulf. The extension is made chiefly for strategic reasons.

INTENSITY, RED AND BLUE POLARITY.

Number 38 of the MARINE RECORD contains a clipping from the Masters' Manual under the caption "Compass Variation." In the article it reads: "The earth is a huge magnet and has a south and north magnetic pole. * * * * * These magnetic poles are respectively the points on the earth towards which the magnetic needle directs itself, or where the intensity of the magnetic force is a maximum."

According to the English Admiralty Manual, third edition, page 102, "The force by which the north end of the needle is drawn in the direction of the dip is not the same over all the globe. It is least near the magnetic equator, and greatest near, but not quite at, the magnetic poles. These points of maximum intensity are sometimes, but improperly, called 'magnetic poles.' This term is more properly confined to the place to which in all the adjoining regions the needle points, and at which the free needle would stand vertically; and the points of maximum intensity are more usually and more conveniently designated as 'magnetic foci.'

In the northern hemisphere there are two such foci; and it is believed that there are two corresponding in the southern hemisphere. These foci of magnetic force are of unequal strength; in the northern hemisphere, the strongest, or the American focus, lies to the S.W. of Hudson bay near the great system of the North American lakes; the weaker, or Siberian focus, may be assumed as in 70° N. and 120° E. In the southern hemisphere, the position of the stronger focus may be assumed in 70° S. and 145° E.; and the weaker is probably in about 50° S. and 130° E. At these foci the force is between two and three times the amount of that at the magnetic equator."

Furthermore, in the article above referred to, it reads: "The general law of magnetism is that like poles repel and unlike poles attract." What do they repel or attract? The answer is, one another; which makes the sense in the sentence complete. The north pole of the needle is attracted by a magnetic south pole, and the south pole by a magnetic north pole; consequently, the magnetic north pole of the

earth has south polarity and the magnetic south pole has north polarity. To better distinguish different polarities, red is used for north and blue for south.

JOHN MAURICE,

Civil Engineer and Nautical Expert.

Chicago, Sept. 28, 1898.

SUEZ CANAL TRAFFIC.

The following is a statement of the Suez canal traffic for the half year ended June 30, 1898:

NATIONALITY.	No. Of Ships.	Net Tonnage.	Traffic Receipts.
British	1,196	3,252,634.76	\$5,904,926
French	107	439,001.71	535,320
Austrian	49	122,658.02	221,763
Spanish	18	54,914.41	111,524
Italian	39	69,846.68	132,942
Norwegian	28	54,586.87	101,895
Portuguese	3	297.45	537
American	4	1,531.17	2,750
Japanese	17	63,206.67	122,231
Russian	27	82,648.63	180,419
Dutch	99	194,570.16	360,664
German	178	471,571.05	873,585
Argentine	1	319.05	582
Egyptian	5	4,236.73	10,809
Danish	3	7,562.78	11,856
Ottoman	15	19,119.86	58,354
Greek	2	1,908.74	4,118
Chinese	1	1,463.43	2,645
Total	1,792	4,842,078.17	\$8,636,920

Cairo, July 27, 1898.

ETHELBERT WATTS.

Vice and Deputy Consul-General.

THE Peerless Rubber Company, of 16 Warren street, New York, are sending, on request, a lithograph advertisement, showing the Oregon and giving some of her dimensions and performances. All her joints were fitted with packing and gaskets of this company, and they are naturally proud of the fact.

BRITISH STEEL TUBES FOR THE UNITED STATES.

A couple of days ago I received from a firm of merchants in the United States a request for the names of British manufacturers who make seamless steel tubes of 8 and 12 inch bore, walls of one-fourth inch thickness, with 4-inch flange, and the inside of gun-barrel smoothness. These tubes are evidently intended for use in shipbuilding.

In response to letters sent to several manufacturers, I have had calls from several representatives and have given them the addresses of the American firm making the request. From some of these people I learn that they have received inquiries direct from other American firms for tubes of 4, 6 and 8 inch bore, but the inquiry I have is the only one for 12 in. and they are surprised that there should be an intention to have the tubes and flange in one piece of metal, as government requirements here and on the continent demand that the flange be attached separately by rivets.

The several inquiries for large tubes give the matter importance, and it would be interesting to know whether tubes of the kind are manufactured in the United States or not; whether the inquiries mean only a question of price; or whether we are really dependent upon Great Britain for tubes for shipbuilding.

I send this report because if there are American manufacturers of large tubes, they are, I believe, entitled to the information I have about possible purchases here.

The manufacturers of bicycle and other small seamless tubes here are in a mild state of excitement, owing to advices they have received from the United States that there is a prospect of the formation of a trade trust with a general increase of price, and they anticipate that this may admit English tubes again to the American market.

MARSHAL HALSTEAD, Consul.

Birmingham, August 8, 1898.

A LARGE contract was awarded a few days ago to the Carnegie Steel Co. It calls for about 25,000 tons of steel plate to be used on four ocean steamships now in course of construction by the Morgan Steamship Co. The Newport News Dry Dock and Ship Building Co. let the contract.

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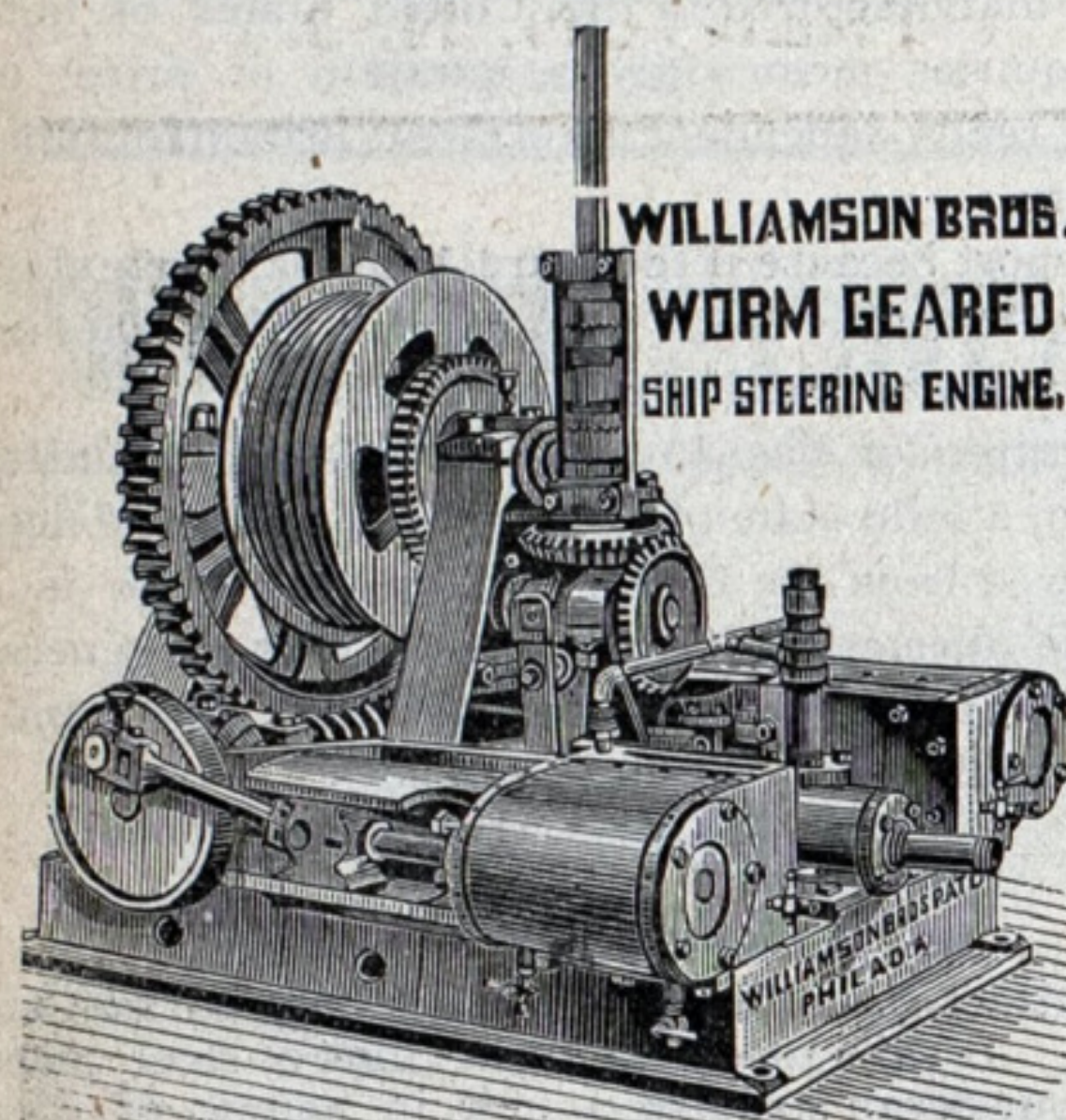
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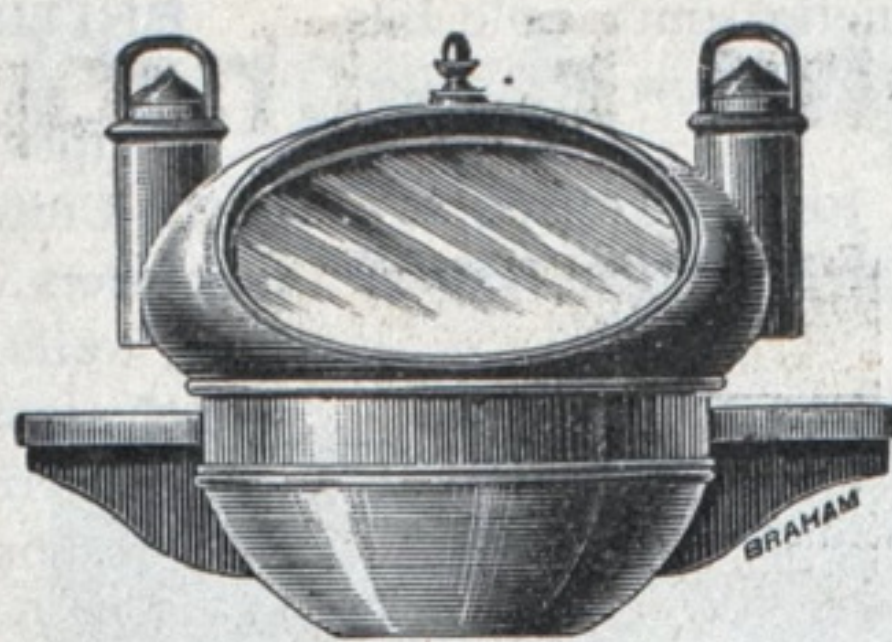
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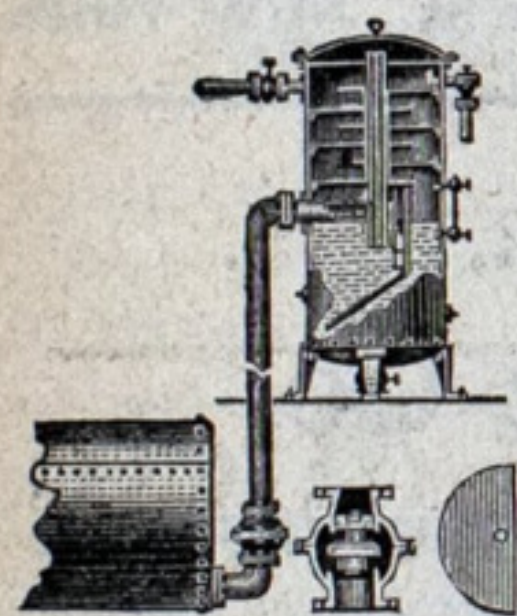
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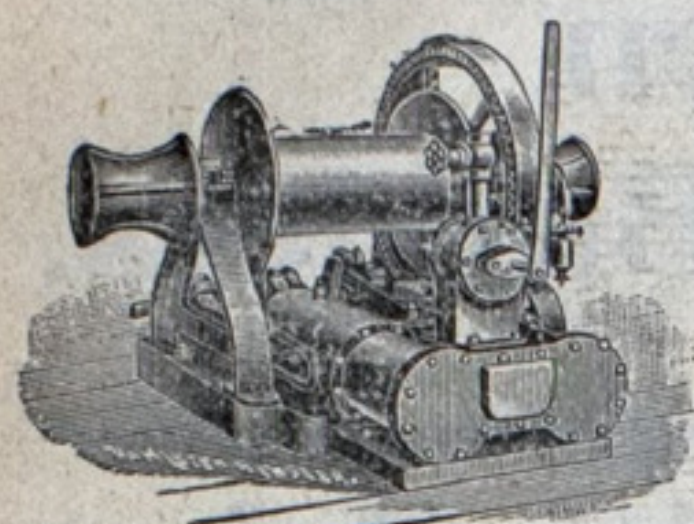
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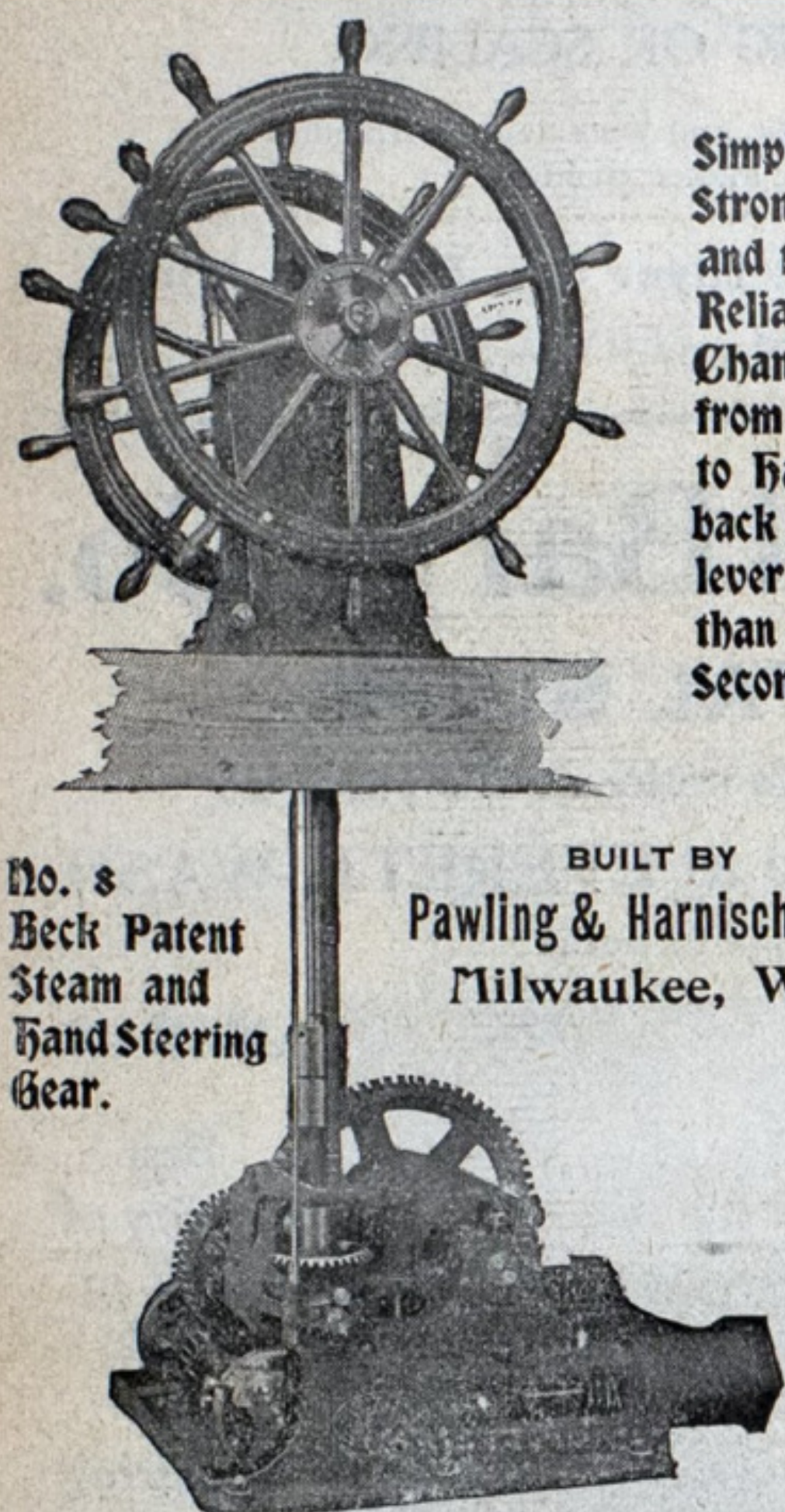
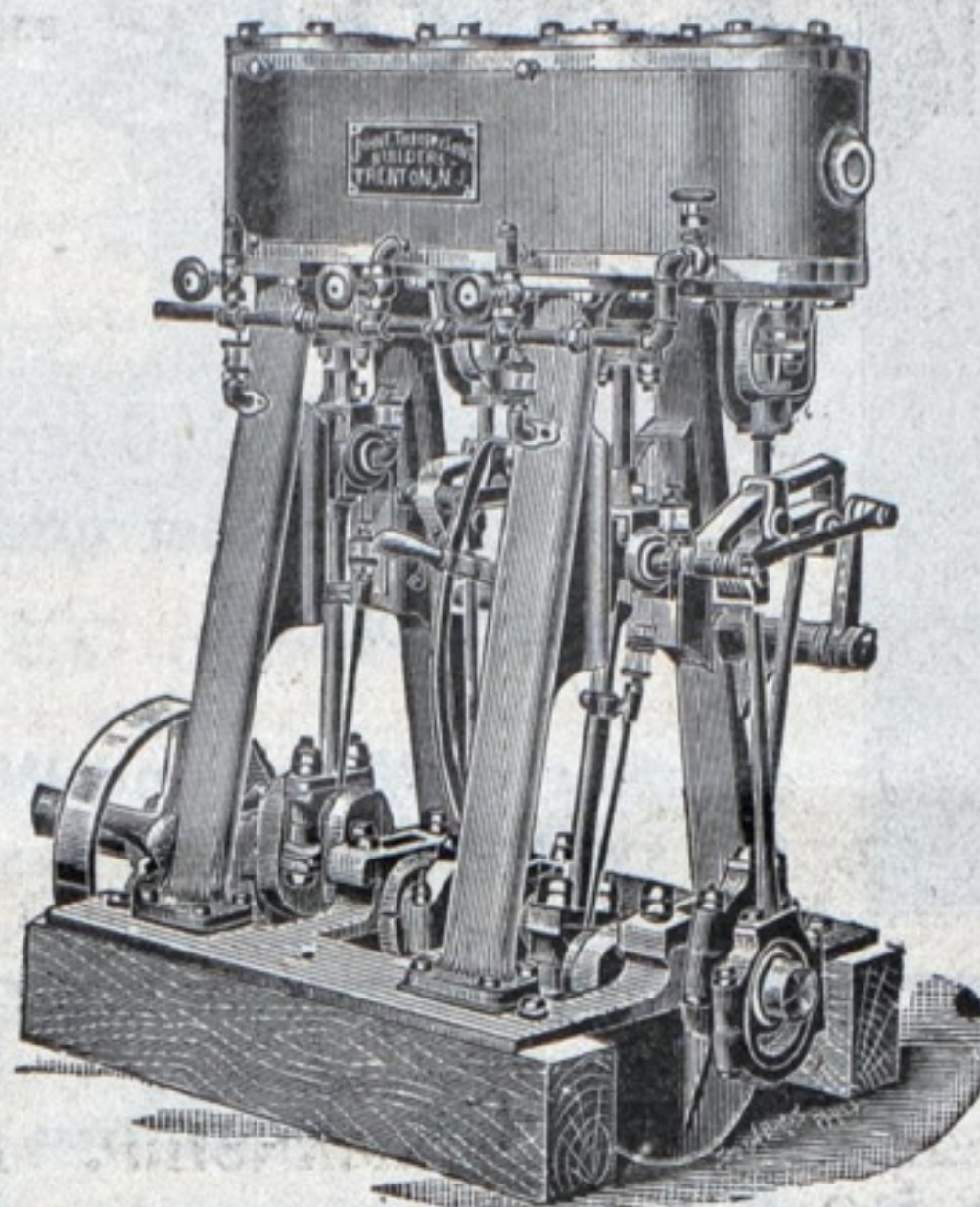
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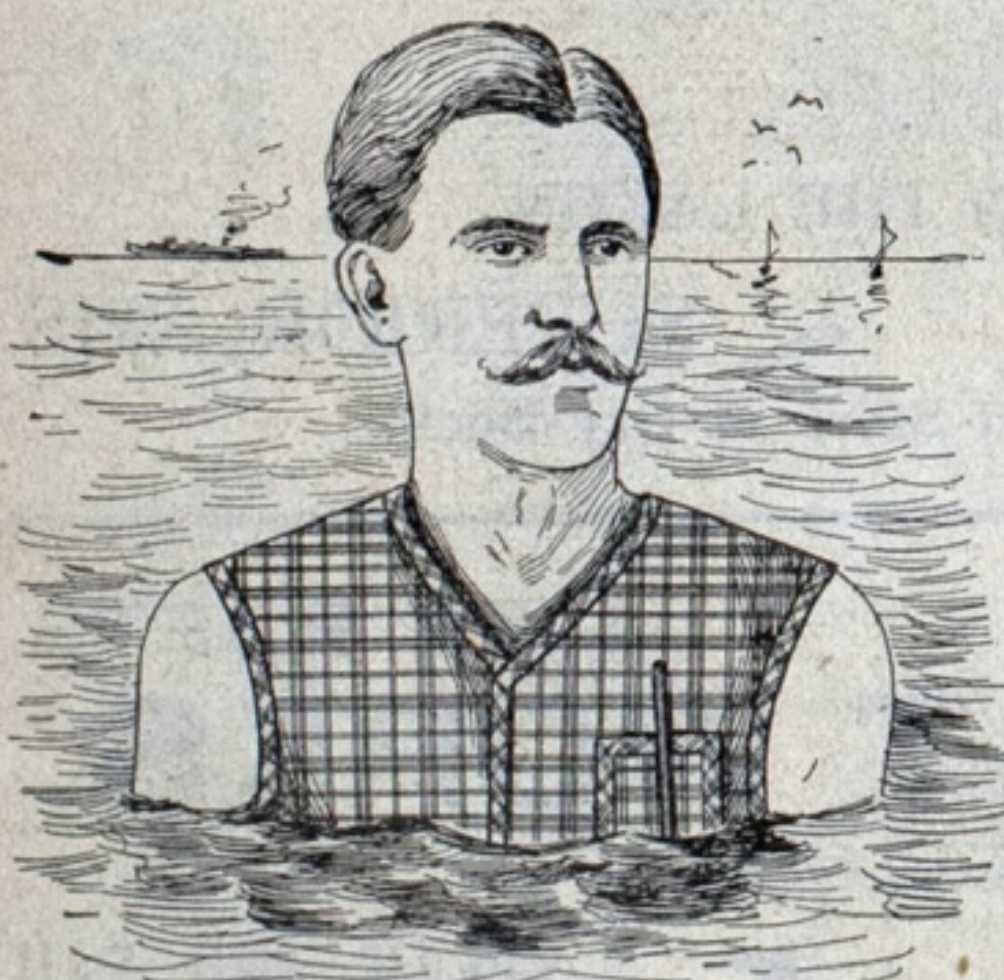
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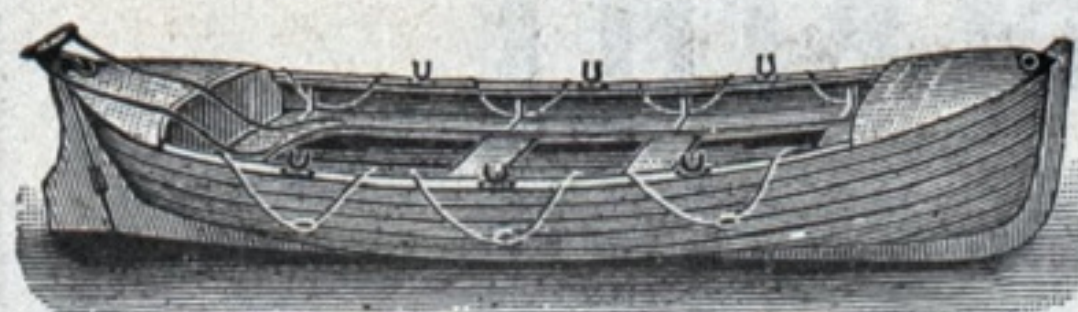
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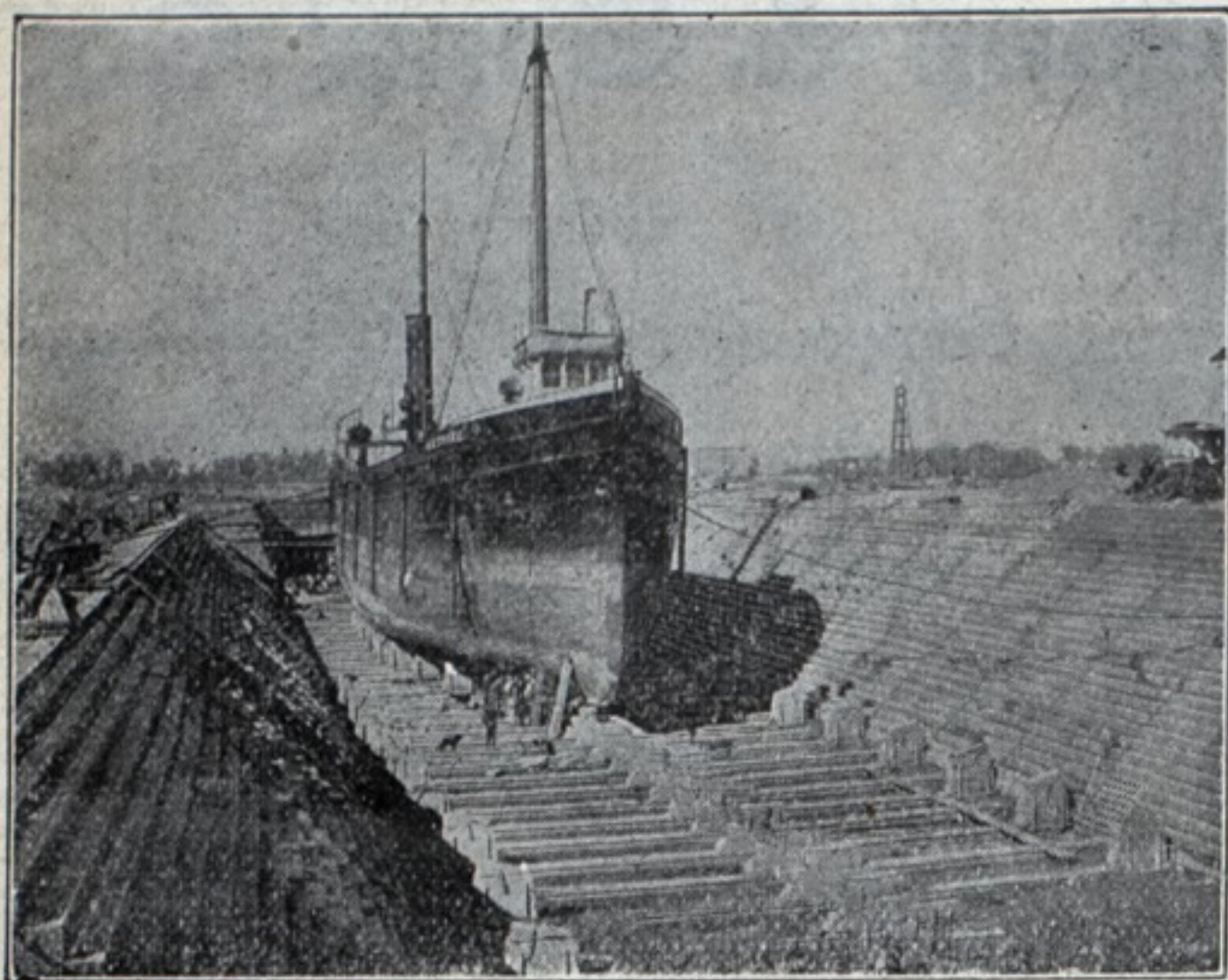
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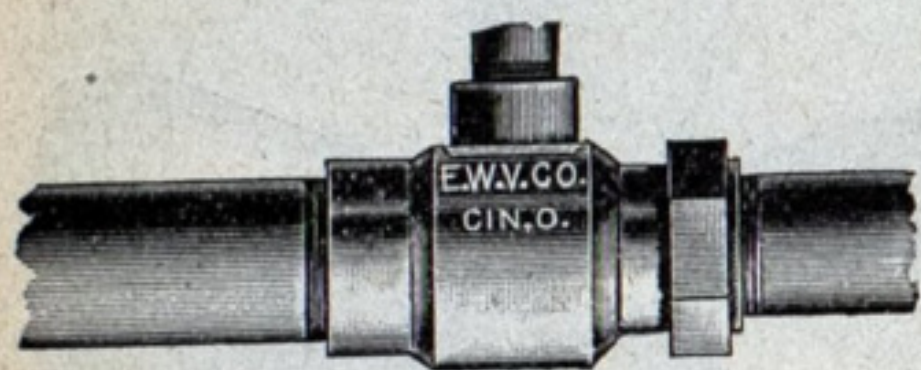
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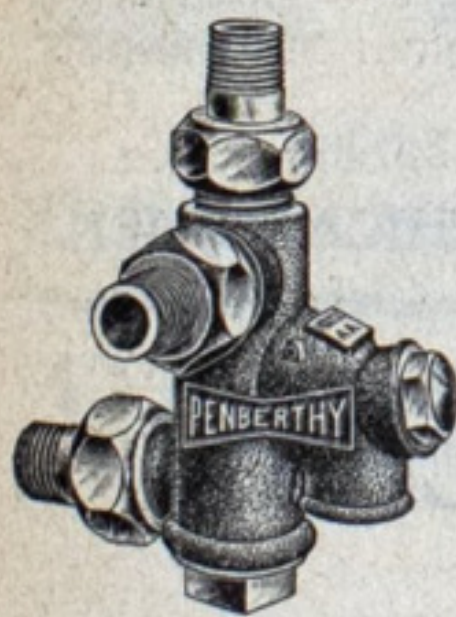
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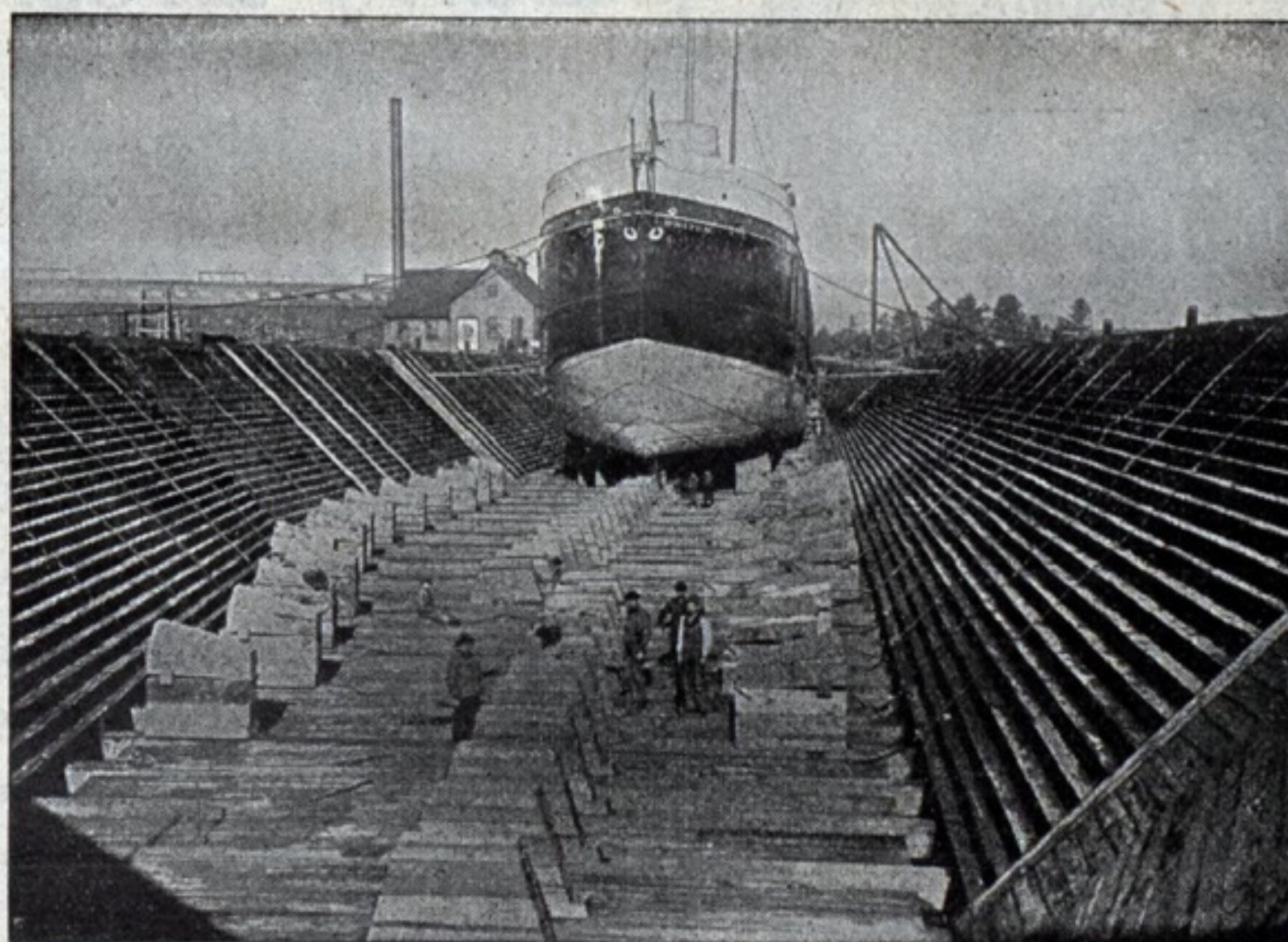
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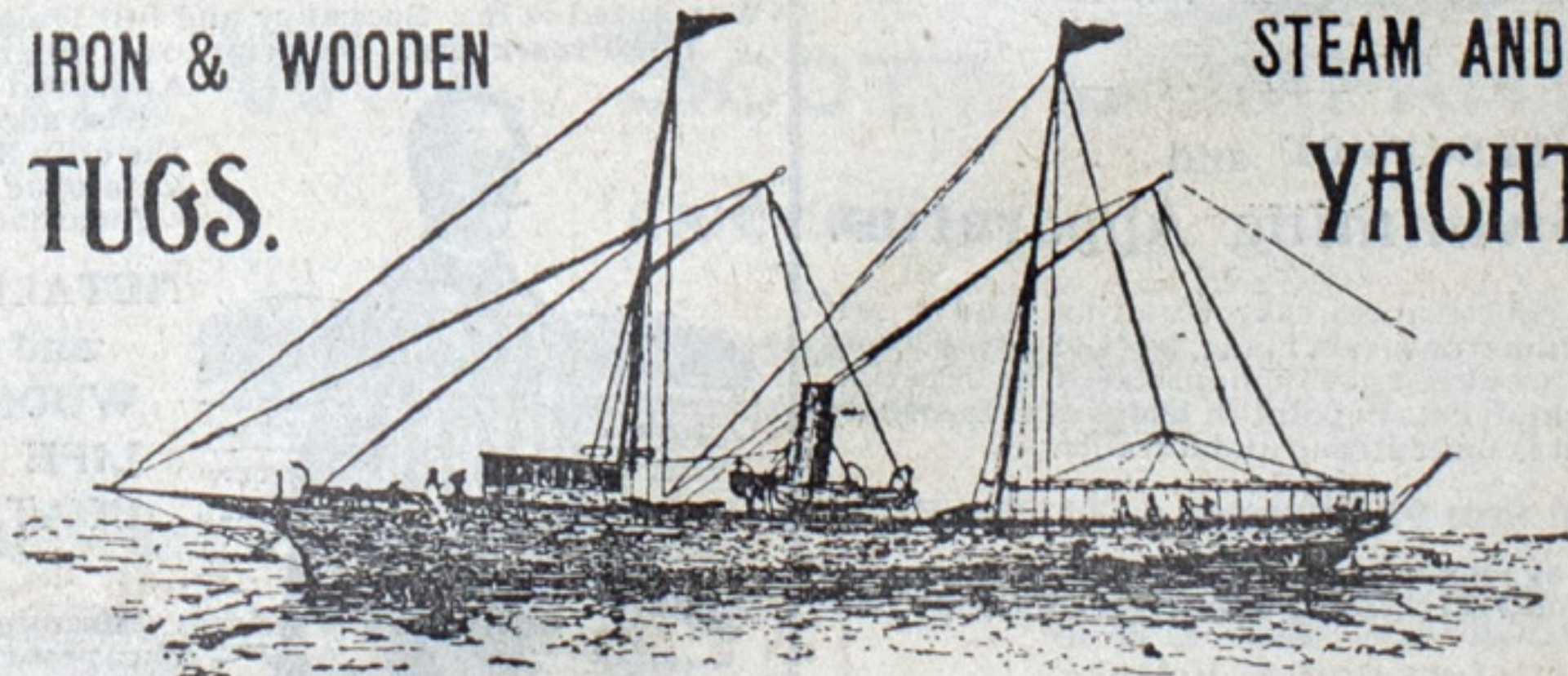
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